Oasys SHELL
Version 9.3

Oasys

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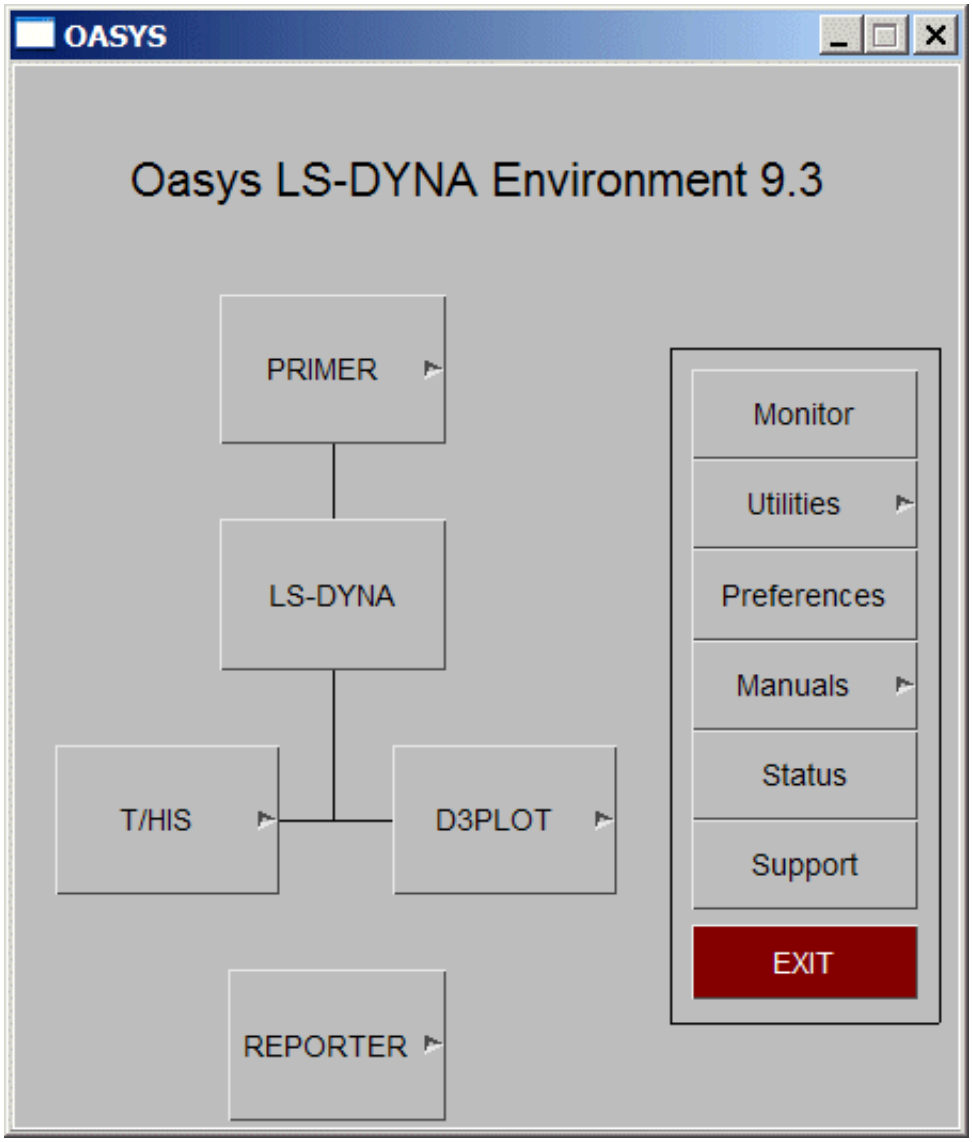
1 Oasys LS-DYNA Environment

1.1 Introduction



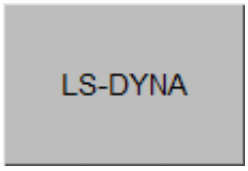
1.1.1 UNIX/LINUX

On UNIX/LINUX the Oasys LS-DYNA Environment software is accessed by typing the command: **oasys_93**

1.1.2 Windows

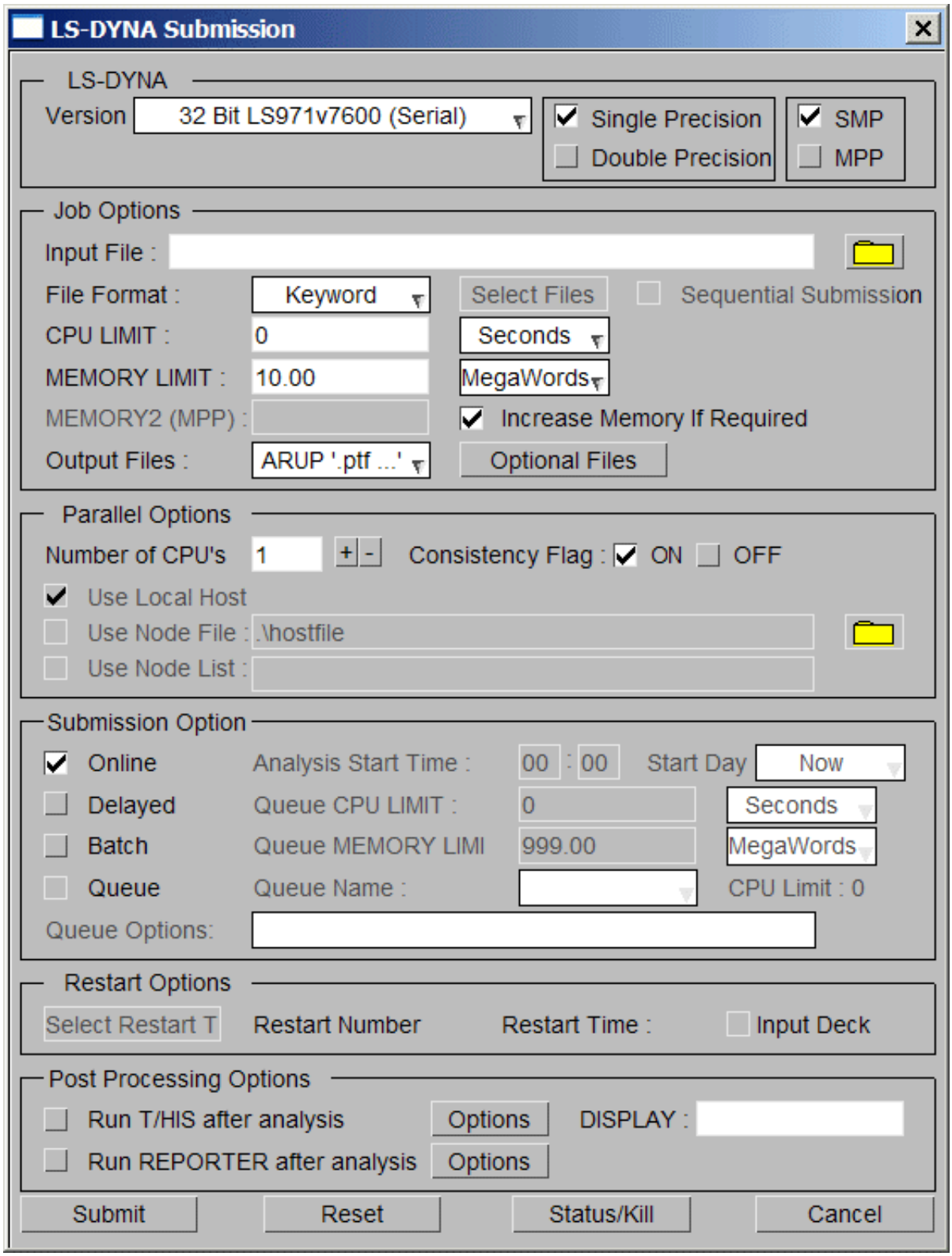
On Windows the Oasys LS-DYNA Environment software is accessed via **Start -> Programs -> oasys93->oasys93**

1.2 LS-DYNA

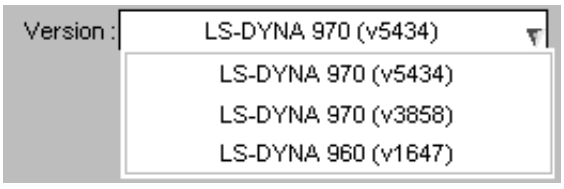


This button accesses the submission menu for LS-DYNA.

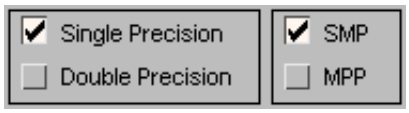
The first time this button is pressed the ’oa_pref’ file will be read and any default values set (see section 4 for more details on the ’oa_pref’ file). After the file has been read following menu will be displayed.



1.2.1 LS-DYNA version options



The Oasys submission shell can be used to access more than one version of LS-DYNA. Clicking on the tab labeled LS-DYNA version will bring up this drop down menu listing the versions of LS-DYNA present in the dyna_versions file.



Alternatively, the version of LS-DYNA can be specified using the tabs to the right of this drop down menu.

These tabs can be used to select the desired Precision and code-type for the analysis. Clicking on the tabs will cause the default LS-DYNA version corresponding to the options specified to be selected.

The options available are described below:

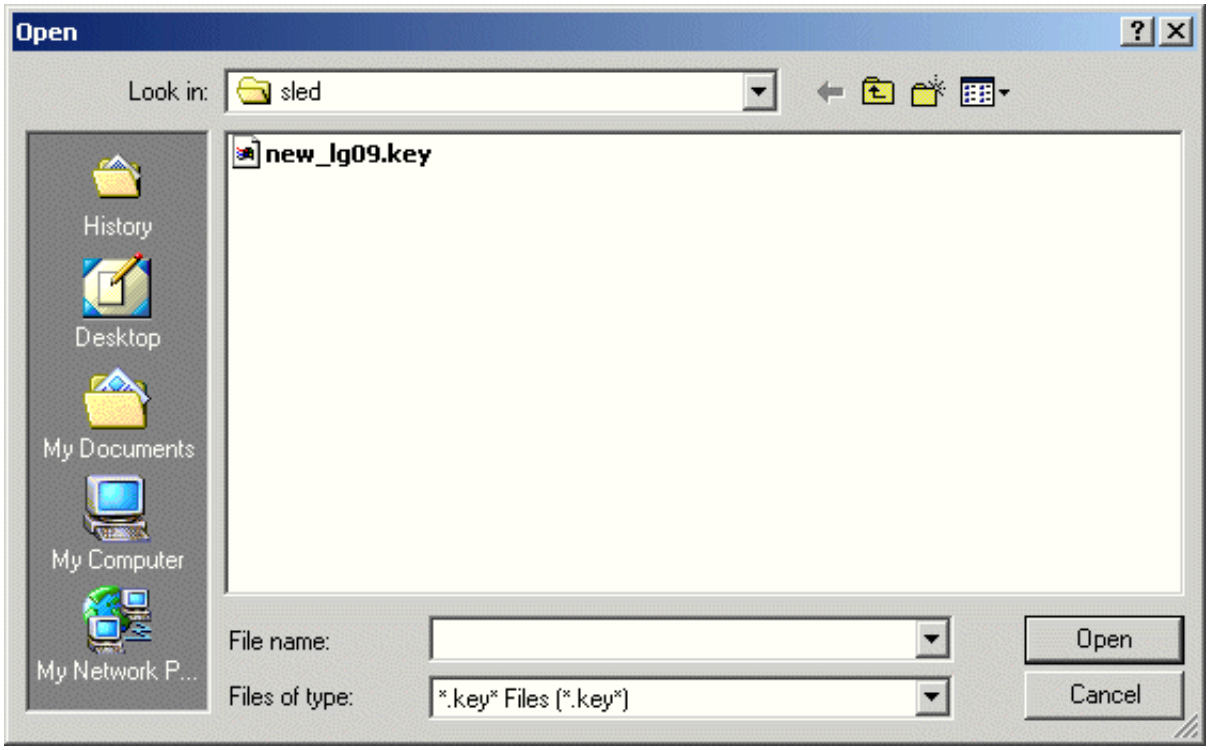
Precision:
Single Precision (32 bit floating point)
Double Precision (64 bit floating point)

Code Type:
SMP (Shared memory parallel)
MPP (Distributed memory parallel

1.2.2 Job options

1.2.2.1 Input File

Enter the name of the analysis file into the box provided. Jobs may be specified in any directory by entering either the full pathname of the input file or the pathname relative to the current directory. If the input file format is set to Keyword it will be assumed that the filename ends in '.key', otherwise it will be assumed that the filename ends in '.inf'. To search for the file, click on the icon to the left of the Jobname box. This will bring up a standard file selector box shown below.



The default search pattern will be set to '*.key' if the input file format is set to Keyword, '*.inf' if it is set to Fixed and '*.lst' if it is set to List.

1.2.2.2 Input file format

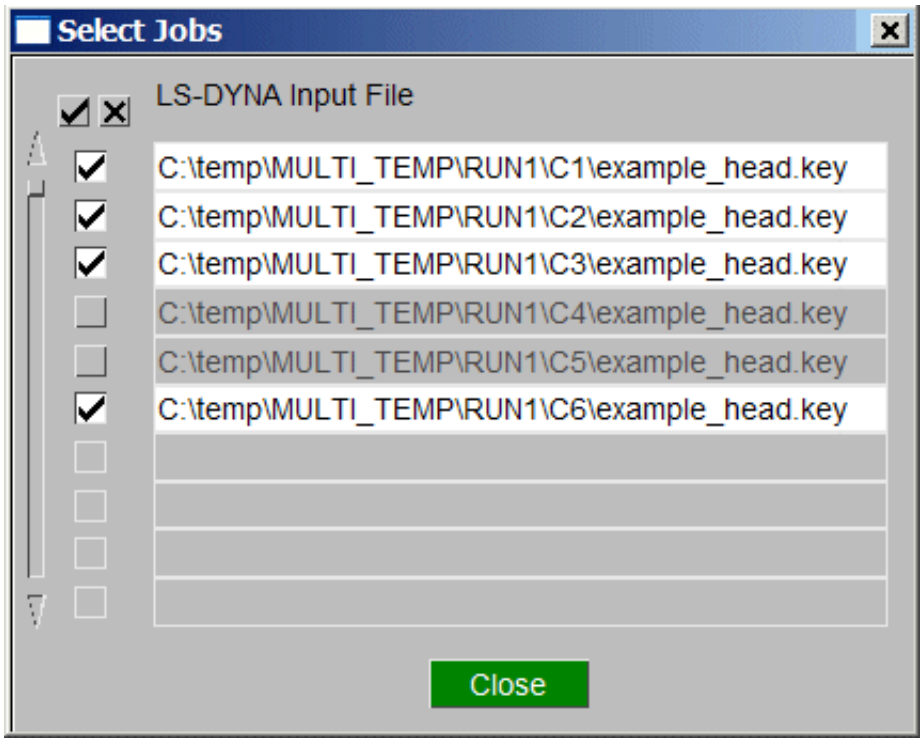
The input file format may be altered between Keyword and Fixed and List.

If the List option is chosen a file containing a list of LS-DYNA models can be selected for submitting to LS-DYNA. The List file can contain either just a list of LS-DYNA models or it can also contain additional information for running Oasys REPORTER automatically after the analysis terminates. (see section 1.6.3 for details on the List file format).

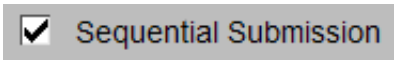
All of the jobs can be submitted either sequentially or simultaneously.

1.2.2.3 Select Files To Run

If the input file format is set to List then a subset of the models listed in the file can be selected to be run when the List file is submitted.



1.2.2.4 Sequential Job Submission



If a list of LS-DYNA jobs is submitted using the List option then they can either be submitted sequentially one after the other or they can all be submitted simultaneously.

1.2.2.5 CPU limit

The Analysis CPU Limit can be entered directly in the space provided. The units used to define the CPU limit can be switched between Seconds, Minutes and Hours by using the toggle available. The value entered is the actual amount of CPU time that LS-DYNA will use for the analysis. When this limit is reached LS-DYNA will terminate the job. A value of "0" means that no limit has been set and the job will run to termination.

1.2.2.6 MEMORY limit

The Analysis Memory Limit can be entered directly in the space provided. The units used to define the Memory Limit can be switched between Words and Megawords and Automatic using the available toggle. The value entered is the size of the main array declared internally within LS-DYNA that is used to store data in.

A value of "0" means that the analysis will use the default value built into LS-DYNA. If a value is specified on the *KEYWORD card in a input deck then that value will override all other memory definitions.

1.2.2.7 MEMORY2 (MPP only)

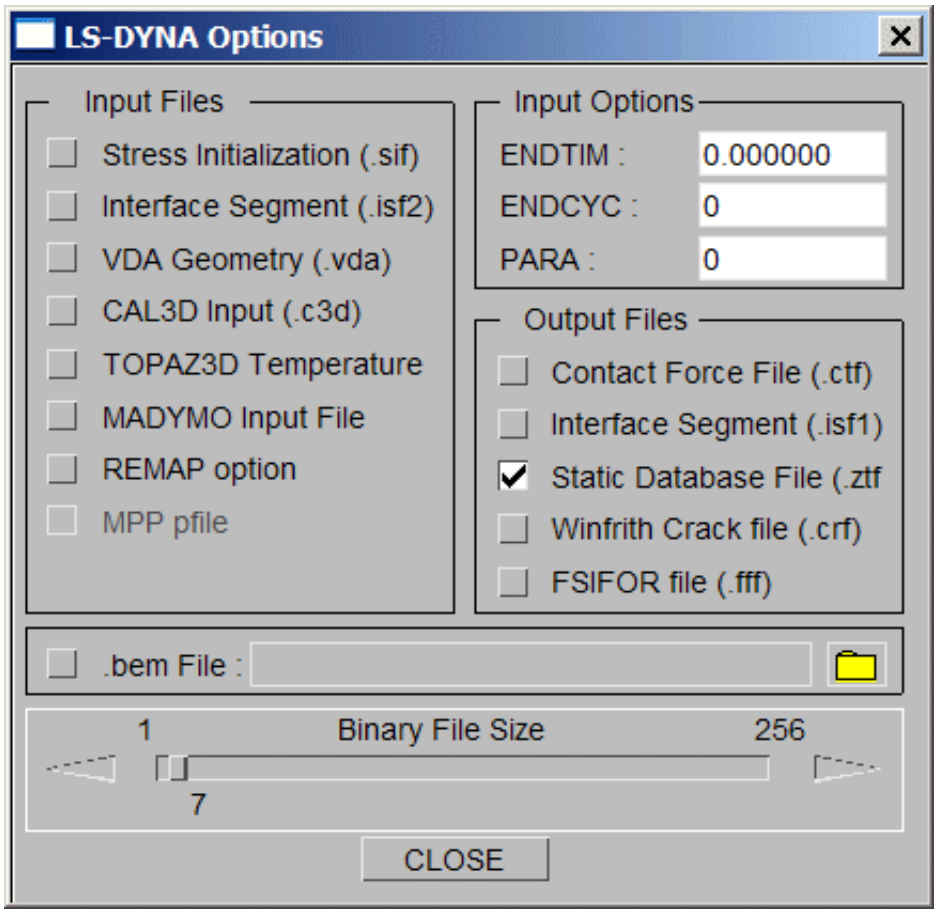
This option is only available for the MPP version of LS-DYNA. With the MPP version of LS-DYNA more memory is required for the first CPU that initialises the model than for the other processors. Generally if the first CPU requires X words of memory to initialise the job then the amount of memory required for each additional processor is X/n where n is the total number of CPU's.

1.2.2.8 Automatically Increase Memory If Required

If this option is selected then LS-DYNA will automatically increase the amount of memory it uses if the amount specified by MEMORY LIMIT is insufficient.

1.2.2.9 Optional Files

Clicking on the OPTIONS tab will display this menu of input and output options that can be used with LS-DYNA. For more details on these options see the LS-DYNA User's manual.



1.2.2.10 Output Files

This option controls the names of the output files generated by LS-DYNA, either ARUP or LSTC can be selected. With LS-DYNA 970 onwards the names of the output files can also be specified using the *KEYWORD_ID option where a filename prefix for all of the output files is specified within the input file. If a filename prefix is specified in the input file then this option will be replaced with the prefix specified in the file.

Output File	**ARUP**	**LSTC**	***KEYWORD_ID**
Binary Complete State Database	'jobname'.ptf	d3plot	'prefix'.d3plot
Time History Database	'jobname'.thf	d3thdt	'prefix'.d3thdt
Extra Time History Database	'jobname'.xtf	xtfile	'prefix'.xtfile
Binary Output File	binout	binout	'prefix'.binout
Restart Dump File	'jobname'.dpf	d3dump	'prefix'.d3dump
Running Restart Dump File	'jobname'.adf	runrsf	'prefix'.runrsf

1.2.3 Parallel options

1.2.3.1 Number of cpus

This option will only be accessible if your system supports parallel versions of LS-DYNA. The required number of processors to run the job on can be selected using the arrow buttons. The maximum number of processors that can be selected is controlled through the 'oa_pref' file (see section 2.3)

The value selected will override the number of processors selected on the *CONTROL_PARALLEL card in the input deck.

1.2.3.2 Consistency Flag

This option controls whether parallel analyses are run with the accuracy option in LS-DYNA turned ON or OFF. The default is to turn the accuracy option ON which results in nearly identical results across different numbers of CPU's but a lower overall speedup in the job time.

The value selected will override that selected on the *CONTROL_PARALLEL card.

1.2.3.3 Local Host

This option will only be availble when submitting MPP jobs using either the Online, Background or Batch options.

When selected the MPP jobs will be submitted using only the machine that the shell is being run on.

1.2.3.4 Node File

This option will only be availble when submitting MPP jobs using either the Online, Background or Batch options.

This option can be used to select a file containing a list of Nodes and CPUS to use when submitting an MPP job. The format of the file will depend on the MPI library that the version of LS-DYNA has been built with.

MPICH
```
cluster1:2
cluster2:2
cluster3
cluster4
```
Submit a job using 4 hosts, use 2 CPU's on "cluster1" and "cluster2" and 1 CPU on "cluster3" and "cluster4"

HPMPI
```
cluster1:2
cluster2:2
cluster3
cluster4
```
Submit a job using 4 hosts, use 2 CPU's on "cluster1" and "cluster2" and 1 CPU on "cluster3" and "cluster4"

LAM
```
cluster1 cpu=2
cluster2 cpu=2
cluster3
cluster4
```
Submit a job using 4 hosts, use 2 CPU's on "cluster1" and "cluster2" and 1 CPU on "cluster3" and "cluster4"

1.2.3.5 Node List

This option will only be availble when submitting MPP jobs using either the Online, Background or Batch options.

This option can be used to specify a string containing the list of Nodes and CPUS to use when submitting an MPP job. The format of the sting will depend on the MPI library that the version of LS-DYNA has been built with.

MPICH #hosts host1 cpus(1) host2 cpus(2) ..... hostn cpus(n)

```
4 cluster1 2 cluster2 2 cluster3 1 cluster4 1
```

Submit a job using 4 hosts, use 2 CPU's on "cluster1" and "cluster2" and 1 CPU on "cluster3" and "cluster4"

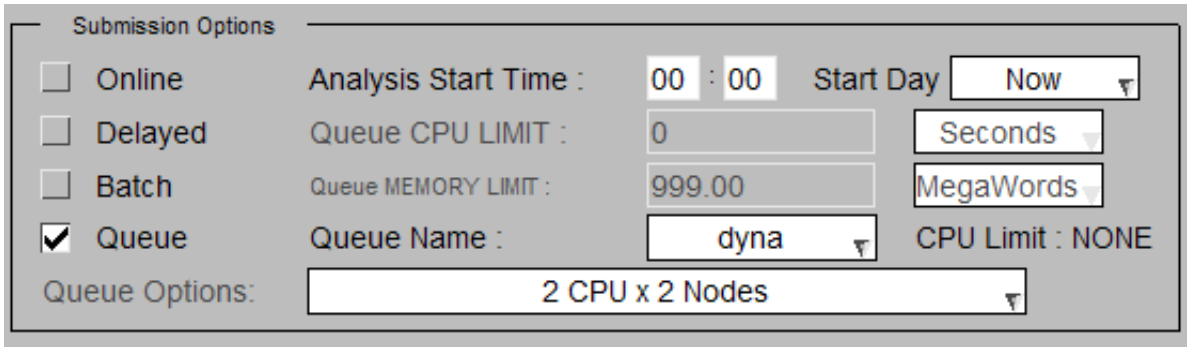
HPMPI host1:cpus(1),host2:cpus(2),.....,hostn:cpus(n)

```
cluster1:2,cluster2:2,cluster3,cluster4
```

Submit a job using 4 hosts, use 2 CPU's on "cluster1" and "cluster2" and 1 CPU on "cluster3" and "cluster4"

1.2.4 Submission options

1.2.4.1 Submission method



Jobs may be submitted using 4 different submission methods. If some of the options are not available on your system then the option will be greyed out in the submission menu and will be unselectable. The parameters that can be specified under each option are different and those available under the Queue option will vary from system to system.

The four different submission options are :

Online	Submit jobs interactively using an Xterm session. Delayed start times cannot be specified.
Background	Submit jobs in background. If a delayed start times is specified then the job will be submitted using the Unix 'at' command.
Batch	Submit jobs into a batch queue using the Unix 'batch' command. Delayed start times cannot be specified.
Queue	Submit jobs to NQE batch queues using 'qsub' or equivalent commands. Delayed start times, Queue CPU/Memory Limits may be specified.

1.2.4.2 Analysis Start Time

If a job is submitted using either the Background or Queue options it is possible to specify a time at which the job will execute. The required time should be entered in the form HH:MM using a 24 hour clock. If no time is specified then the job will executed as soon as possible. If the time specified has already been passed then the job will start immediately.

(This option will not be available if the Queue option is submitting the job to a **SGE** queuing system.

1.2.4.3 Analysis Start Day

If a job is submitted using either the Background or Queue options it is possible to specify a day on which the job will execute. Use the toggle to specify the day on which the job will be executed. If a day is specified and no analysis start time has been set, the job will be submitted with a start time of 00:01 on the required day.

(This option will not be available if the Queue option is submitting the job to a **LSF** or **SGE** queuing system).

1.2.4.4 Queue CPU Limit

This option will only be accessible when jobs are being submitted using the Queue option. If your system does not require CPU Limits to be specified for NQS style queues then your system manager will have disabled this option. The Queue CPU Limit can be entered directly into the space provided. The units used to define the CPU Limit can be switched between Seconds, Minutes and Hours using the toggle available. The value entered is the total Queue CPU Limit that include the time taken to run the LS-DYNA analysis and any system time required. The value entered should be larger than the Analysis CPU Limit so that when the analysis finishes there is enough time to write LS-DYNA restart and result files. If the extra time specified is unlikely to be sufficient a warning message will be generated when the job is actually submitted to the Queue.

A value of "0" means that the analysis will be submitted with an unlimited Queue CPU Limit.

1.2.4.5 Queue Memory Limit

This option will only be accessible when jobs are being submitted using the Queue option. If your system does not require Memory Limits to be specified for NQS style queues then your system manager will have disabled this option. The Queue Memory Limit can be entered directly into the space provided. The units used to define the Memory Limit can be switched between Words and Megawords using the toggle available. The value entered defines the total amount of memory that the job will request from the system. In order to allow LS-DYNA to initialise this value should be set to a minimum of 5000000 words larger than the Analysis Memory Limit, (see section 2.3.1). If a smaller value is specified a warning message will be generated when the job is actually submitted to the Queue.

A value of "0" means that the analysis will we submitted with an unlimited Limit.

1.2.4.6 Queue Name

This option will only be accessible when jobs are being submitted using the Queue option. If the system has more than one NQS style queue then the required queue may be selected from a pull-down menu activated by the right hand mouse button. When a queue is selected the CPU limit for that queue will be displayed alongside the queue name. If the queue is a pipe queue the word PIPE will be displayed, if the queue has no CPU limit then the word NONE will be displayed. The default queue will be the first one listed in the ’oasys_queue’ file.

1.2.4.7 Queue Options

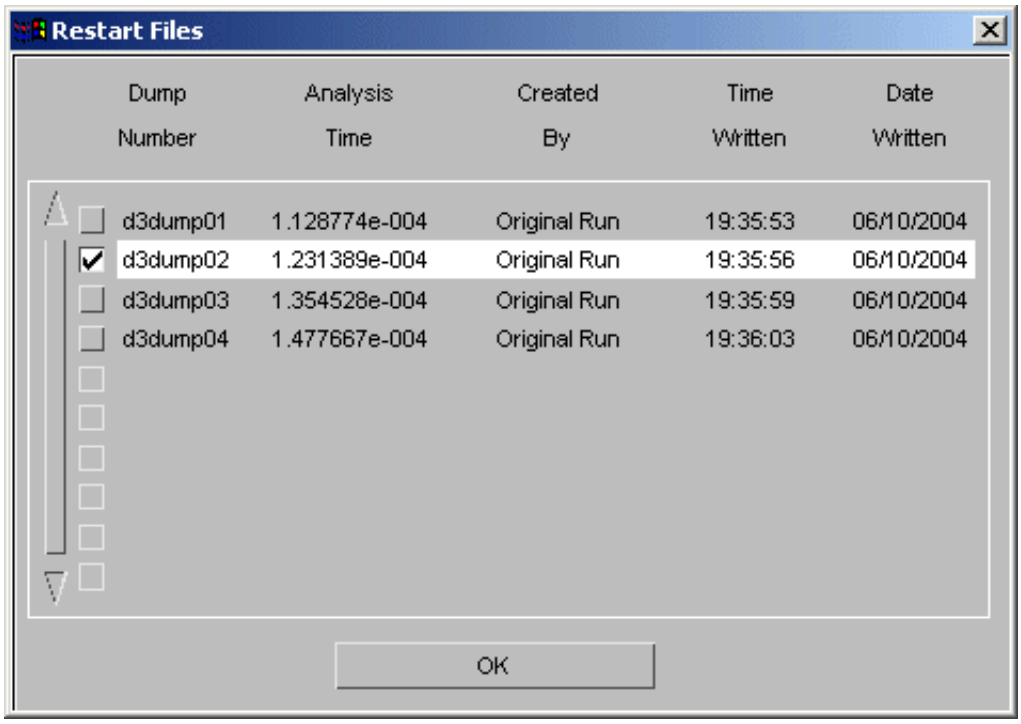
This option will only be accessible when jobs are being submitted using the Queue option. It is intended to be used so that user defined queue directives can be specified rather than using the ones produced by the shell (see Section 2.3.34)

The options available will depend on the queue and number of cpus chosen and the contents of the ’oasys_queue’ file. Selecting an option will put the additional queue directives defined in this file into the submission script. If there are no options available for the selected number of cpus then the options for the next number of cpus up will be displayed, e.g. if the number of cpus chosen is 3, but no options are defined for 3 cpus, then if there are options defined for 4 cpus then the options for 4 cpus will be shown. If there are no options available then the default directives produced by the shell will be used.

1.2.5 Restarts

1.2.5.1 Select Restart Time

This option will only be available if the analysis is not a coupled LS-DYNA/ MADYMO3D analysis. When this button is selected all input to the Oasys Shell will be frozen while a search is carried out for any restart input files that exist for the specified job. When the search has been completed the window shown below with all of the available restart times will be displayed and the required time may be selected.



Select the desired restart file and press the OK button to return to the main submission window where the screen will be updated to reflect the details of the restart file selected. A check will also be carried out to see if a restart input deck exists and if one is found the user will be offered the opportunity to use it.

If, after a restart file has been selected, the user decides that he does not want to use it, the restart file selection menu should be re-displayed and the previously selected file should be deselected.

1.2.6 Post Processing Options

1.2.6.1 Run T/HIS after Analysis

Setting this option to ON will cause a fasttcf .inp script present in the job directory (the directory containing the analysis file) to be executed following termination of the job. Fast-tcf provides a fast, automated method of post-processing output data from LS-DYNA by producing a set of command files for Oasys T/HIS from an ASCII input file. This option will only be available if there is a jobname.inp file. Selecting OFF will disable this automatic post-processing

The Options button can be used to specify options which will affect how T/HIS operates when it is executed. This will open up the T/HIS options window, which will allow T/HIS command line options to be explicitly defined.

1.2.6.2 Run Reporter after Analysis

Setting this option to ON will cause Reporter to automatically run following termination of the analysis. Selecting OFF will disable this automatic post-processing. The Options button can be used to set up input options for Reporter when it runs, see section 1.6.1 for more details on these options.

1.2.6.3 Display

If you are running T/HIS or Reporter automatically at the end of an analysis then this option can be used to select the machine on which T/HIS and Reporter should be displayed when it runs. By default this will be set to the machine you submitted the job from and will not normally need to be changed.

1.2.7 Submit

Click on this button to submit the LS-DYNA job using all of the options previously set. Before the job is actually submitted the following checks will be carried out:

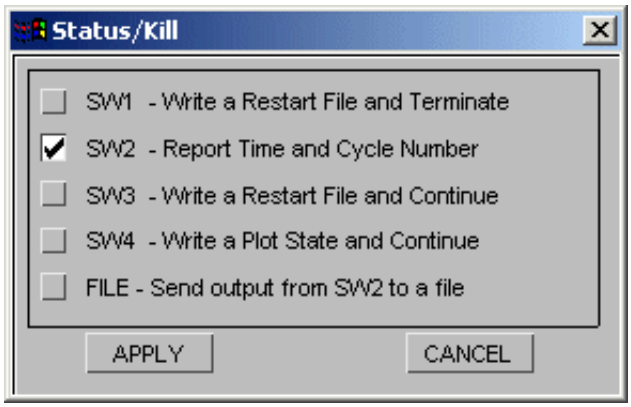
- The input file specified exits.
- The Queue CPU Limit, if specified, is larger than the Analysis CPU Limit.
- The Queue Memory Limit, if specified, is at least 6000000 words larger than the Analysis Memory Limit.
- An Account name , if required, has been specified.

1.2.8 Reset

Click on this button to reset all of the submission options to their default values.

1.2.9 Status Kill

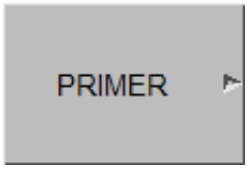
This option can be used to either terminate an LS-DYNA analysis that is already running or to force the analysis to perform a range of tasks. Clicking on this button will bring up the menu shown below, displaying the possible options.


Status/Kill
SW1 - Write a Restart File and Terminate
SW2 - Report Time and Cycle Number
SW3 - Write a Restart File and Continue
SW4 - Write a Plot State and Continue
FILE - Send output from SW2 to a file
APPLY
CANCEL

1.2.10 Cancel

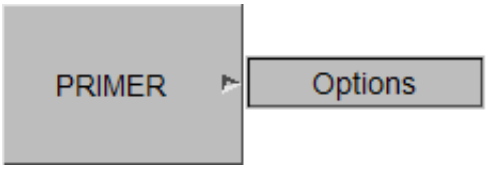
Click on this button to close the submission menu and return to the main shell window without submitting an LS-DYNA job.

1.3 Oasys PRIMER



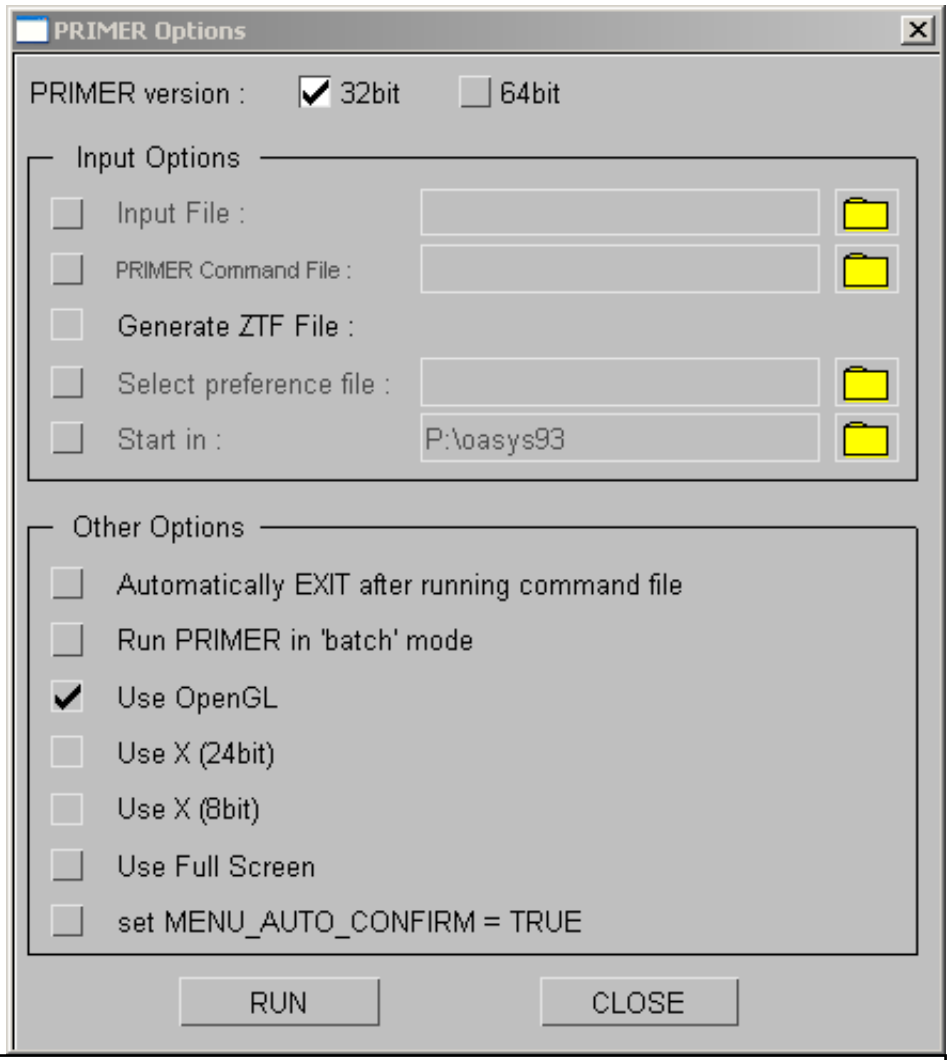
Select this option to access the Oasys PRIMER program. This program is a graphical model editor that will position occupant models, fold airbags and allow model parameters to be modified.

1.3.1 Primer Options



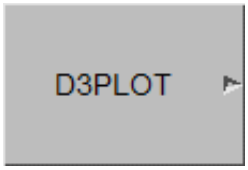
Right clicking on the Primer tab will cause an OPTIONS tab to appear. Selecting this option tab will cause the following window to appear

This menu allows the user to specify an input keyword file and a primer command file which will automatically run when primer opens. It also allows the user to pre-select other options such as graphics options. Select/ deselect the options by clicking on the respective tag. Click on the file divider icon in order to search for the respective files.



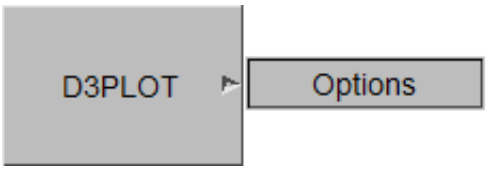
Input Options	
Input File	Specify the name of the keyword file you wish to be read into PRIMER
PRIMER Command File	Specify the name of a command file you wish to be executed on opening PRIMER
Generate ZTF File	Generate a ZTF file containing extra data for D3PLOT and T/HIS
Select preference file	Specify an oa_pref file to read from
Start in	Specify the directory where PRIMER will be fired up and where output files will be written to.
Other Options	
Automatically EXIT ...	Causes PRIMER to close once the specified command file has finished running
Run PRIMER in 'batch' mode	Starts PRIMER in batch mode; a non-graphical mode, which accepts commands from a file specified in the Input options
Use OpenGL	Starts PRIMER using OpenGL graphics mode
Use X (24 bit)	Starts PRIMER using 24bit X Windows graphics mode
Use X (8 bit)	Starts PRIMER using 24bit X Windows graphics mode
Use Full Screen	Opens the PRIMER window to fill the whole screen
Set MENU_AUTO_CONFIRM	This variable is often used when replaying command files which, when recorded, paused and asked the user to confirm things. (For example HELP and Warning messages.) If this option is selected PRIMER will continue automatically using the default option.

1.4 Oasys D3PLOT



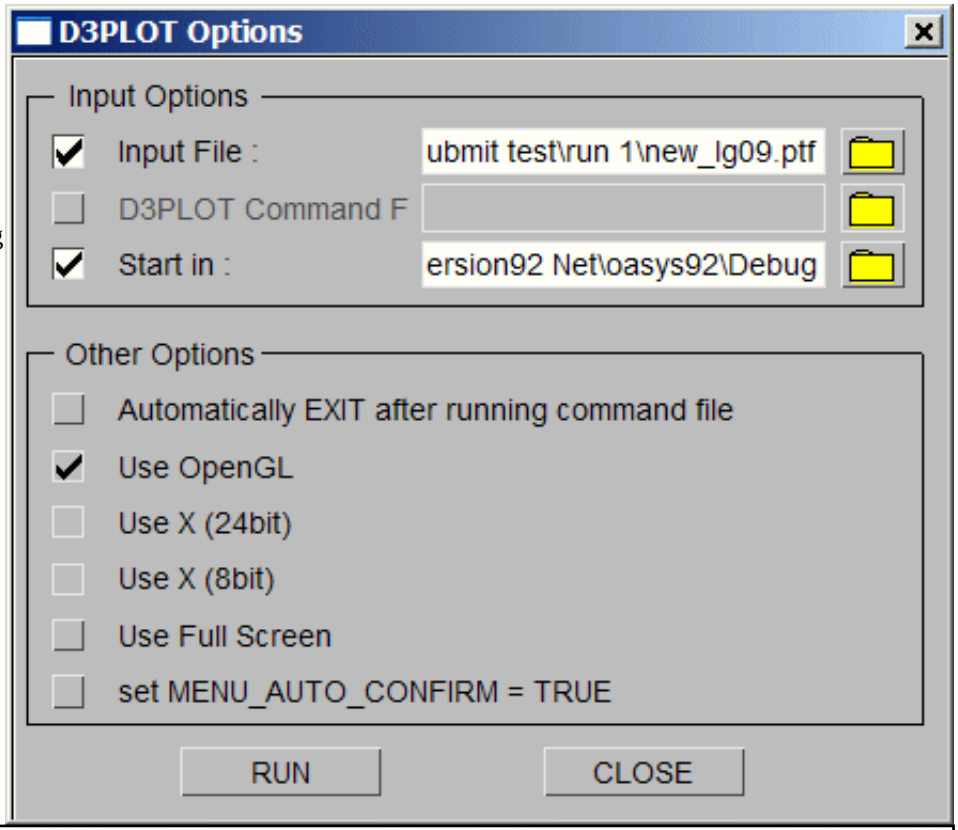
Select this option to access Oasys D3PLOT. This program is a graphical post-processor designed to access the binary output files created by LS-DYNA. For more details see the Oasys D3PLOT Manual.

1.4.1 D3PLOT Options



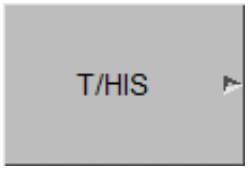
Right clicking on the D3PLOT tab will cause an OPTIONS tab to appear. Selecting this option tab will cause the following window to appear

This menu offers the user the opportunity to specify a .ptf file that will be automatically read into D3PLOT on opening, a D3PLOT command file that will automatically be executed by D3PLOT on opening as well as other options. Select/ deselect the options by clicking on the respective tag. Click on the file divider icon in order to search for the respective files



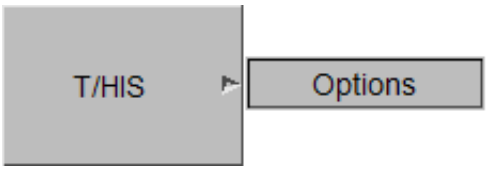
Input Options	
Input File	Specify the name of the .ptf file you wish to be read into D3PLOT
D3PLOT Command File	Specify the name of a D3PLOT command file you wish to be executed on opening D3PLOT
Start in	Specify the directory where D3PLOT will be fired up and where output files will be written to.
Other Options	
Automatically EXIT ...	Causes D3PLOT to close once the specified command file has finished running
Use OpenGL	Open D3PLOT using OpenGL graphics mode
Use X (24 bit)	Open D3PLOT using 24bit X Windows graphics mode
Use X (8 bit)	Open D3PLOT using 24bit X Windows graphics mode
Use Full Screen	Opens the D3PLOT window to fill the whole screen
Set MENU_AUTO_CONFIRM	This variable is often used when replaying command files which, when recorded, paused and asked the user to confirm things. (For example HELP and Warning messages.) If this option is selected D3PLOT will continue automatically using the default option.

1.5 Oasys T/HIS



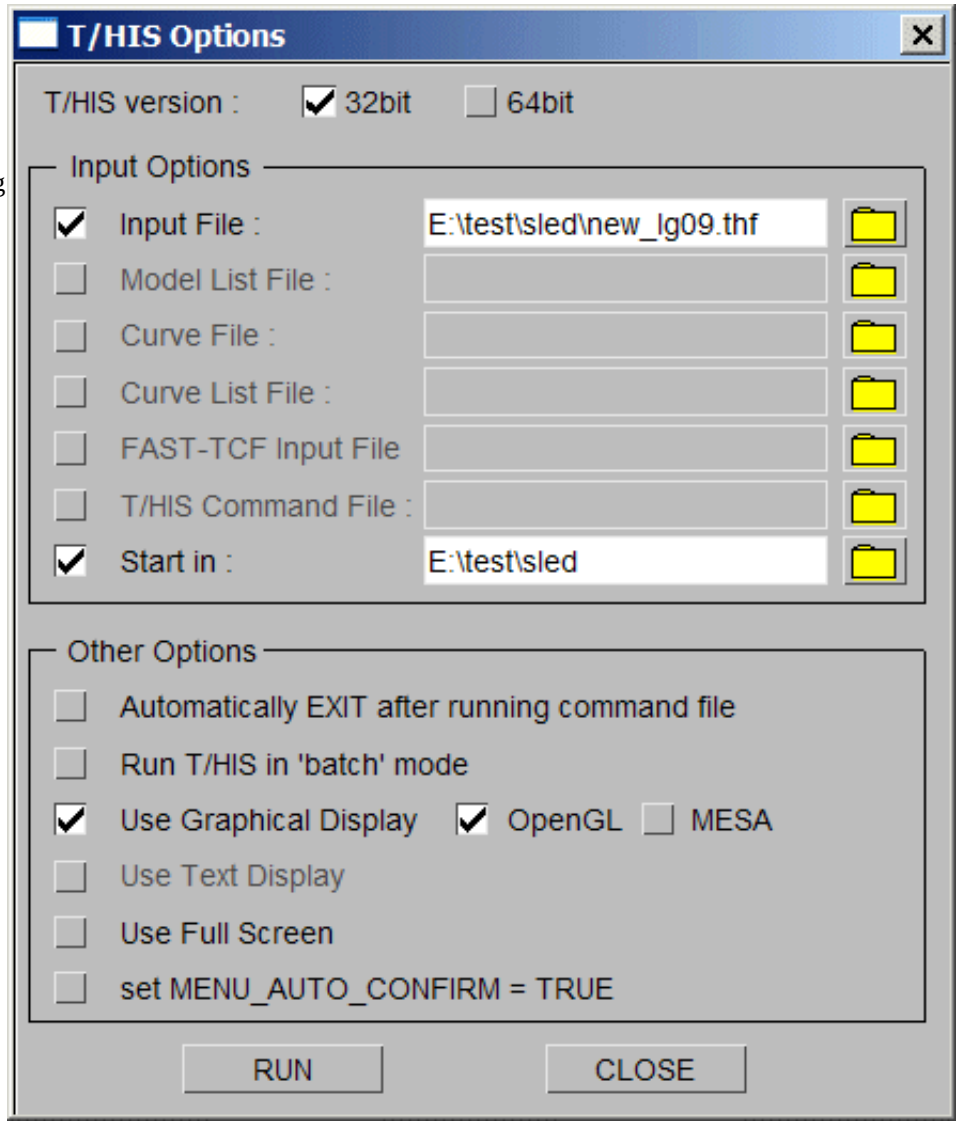
Left click on this option to access Oasys T/HIS. This program is a time history processing and graph plotting package designed to access the binary output files created by LS-DYNA. For more details see the Oasys T/HIS Manual.

1.5.1 T/HIS Options



Right clicking on the T/HIS tab will cause an OPTIONS tab to appear. Selecting this option tab will cause the following window to appear

This menu allows the user to specify a fasttcf .inp file or a T/HIS command file that will be automatically run when T/HIS is opened, along with other T/HIS options. Select/ deselect the options by clicking on the respective tag. Click on the file divider icon in order to search for the respective files.

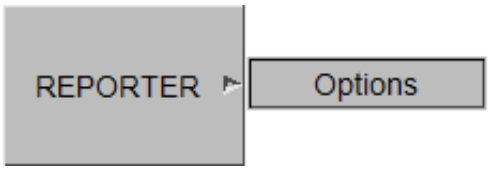


Input Options	
Input File	Specify the name of the .thf file for the analysis whose data you wish to process
Model List File	Specify the name of a file containing a list of models to be opened. Each model should be specifed on a seperate line in the file by giving the full pathname to one of the output files that T/HIS can read.
Curve File	Specify the name of the T/HIS curve file to read
Curve List File	Specify the name of a file containing a list of all the T/HIS curve files to be opened. Each curve file should be specifed on a seperate line in the file by giving the full pathname of the file.
FAST-TCF Input file	Specify the name of a fast-tcf .inp file for post-processing desired data output
T/HIS Command File	Specify the name of a T/HIS command file which collects and processes the desired data
Start in	Specify the directory where T/HIS will be fired up and where output files will be written to.
Other Options	
Automatically EXIT ...	Causes T/HIS to close once the specified command file has finished
Run T/HIS in 'batch' mode	Opens up T/HIS in batch mode; a non-graphical mode, which accepts commands from a file specified in the Input options
Use Graphical Display	Opens up T/HIS in graphical mode. OpenGL or MESA graphics can be selected
Use Text (TTY) Display	Opens up T/HIS in text only mode, which allows the user to specify commands in the terminal window
Use Full Screen	Opens the T/HIS window to fill the whole screen
Set MENU_AUTO_CONFIRM	This variable is often used when replaying command files which, when recorded, paused and asked the user to confirm things. (For example HELP and Warning messages.) If this option is selected T/HIS will continue automatically using the default option.

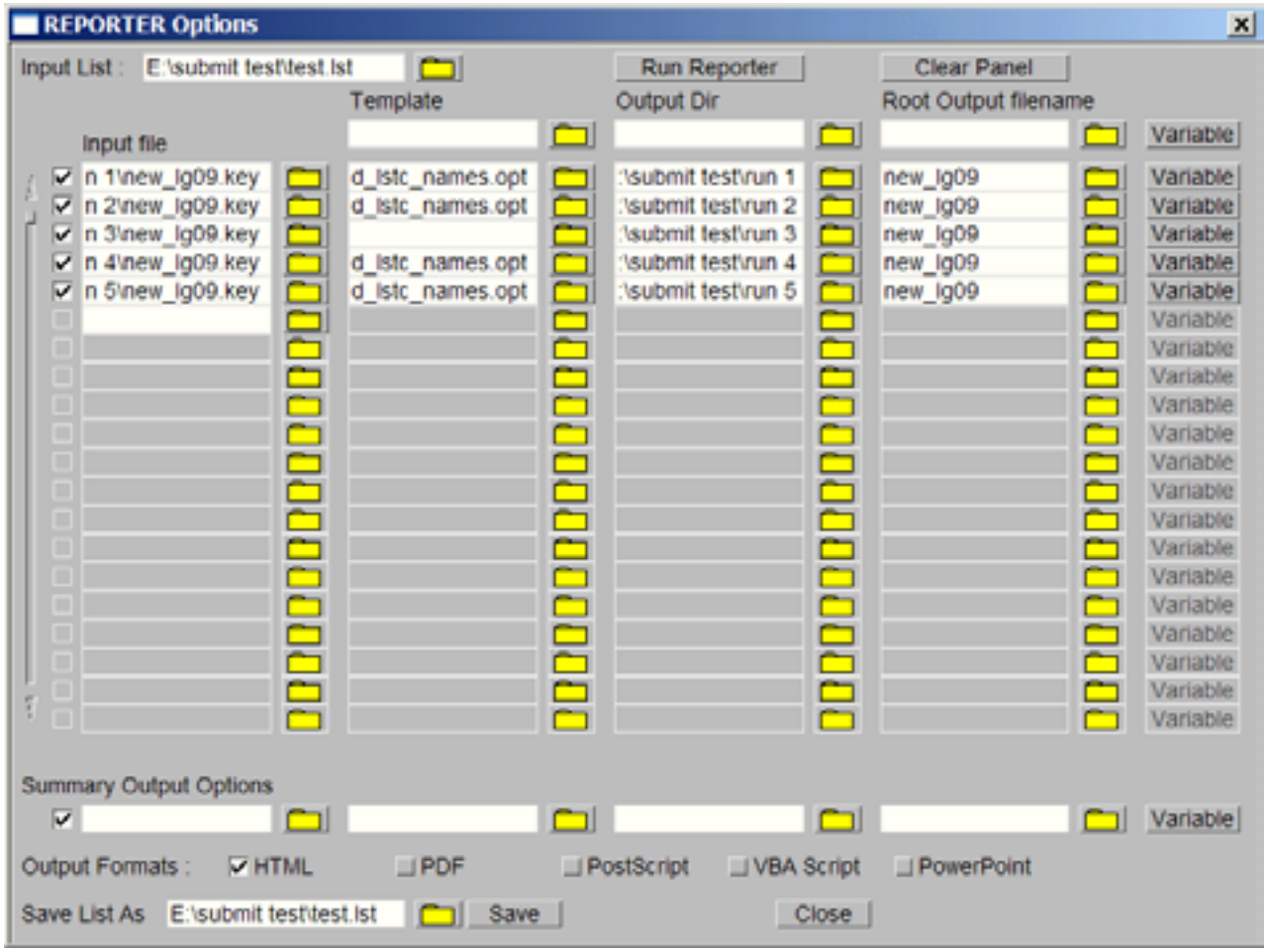
1.6 Reporter

Left click on this option to access Oasys REPORTER. This program is an automatic report generator for use with LS-DYNA, D3PLOT and T/HIS.

1.6.1 Reporter Options



Right clicking on the REPORTER tab will cause an OPTIONS tab appear. Selecting this option tab will cause the following window to appear.



This menu allows the user to define multiple sets of input options for REPORTER. These options can either be entered manually of they can be read from a file, see section 1.6.3 for details on the LIST file format.

In addition to being accessed from the REPORTER Options menu this panel can also be selected from the LS-DYNA Submit menu.

1.6.1.1 Input List

This option can be used to select a predefined LIST file containing multiple sets of inputs for REPORTER. This option can not be modified if this panel was accessed from the LS-DYNA Submit menu.

1.6.1.2 Input Options

Each LS-DYNA job can have the following options set.

Input File	Name of the LS-DYNA input file for post processing. This option can not be modified if this panel was accessed from the LS-DYNA Submit menu.
Template	Defines a REPORTER template file for the job
Output Dir	By default the output directory for any files generated by REPORTER will be set to the directory containing the input file.
Root Output Filename	By default the root of the input filename we will used as the default filename for any output files generated by REPORTER, i,e rootname.pdf, rootname.html ...
Variables	This option can be used to setup variables for use within REPORTER , see section 1.6.2

In addition to setting up options for individual LS-DYNA jobs this panel can also be used to generate a summary report. The options for the summary report are the same as for individual LS-DYNA jobs except that the Input file is optional.

If this panel was accessed from the REPORTER Options

1.6.1.3 Output Formats

HTML	Write an HTML file after REPORTER has finished generating a report
PDF	Write a PDF file after REPORTER has finished generating a report
Postscript	Write a Postscript file after REPORTER has finished generating a report
VBA	Causes Reporter to write a PDF file once it has finished generating a report
Powerpoint	Causes Reporter to write a Powerpoint file once it has finished generating a report

1.6.1.4 Run Reporter

This option starts REPORTER once for each LS-DYNA job that has been defined and passes any input options that have been defined for that job to REPORTER. If a set of summary report options have been defined then an additional instance of REPORTER will be started to generate the summary report.

This option is not available if this panel was accessed from the LS-DYNA Submit menu as REPORTER will be started automatically after each LS-DYNA job has finished.

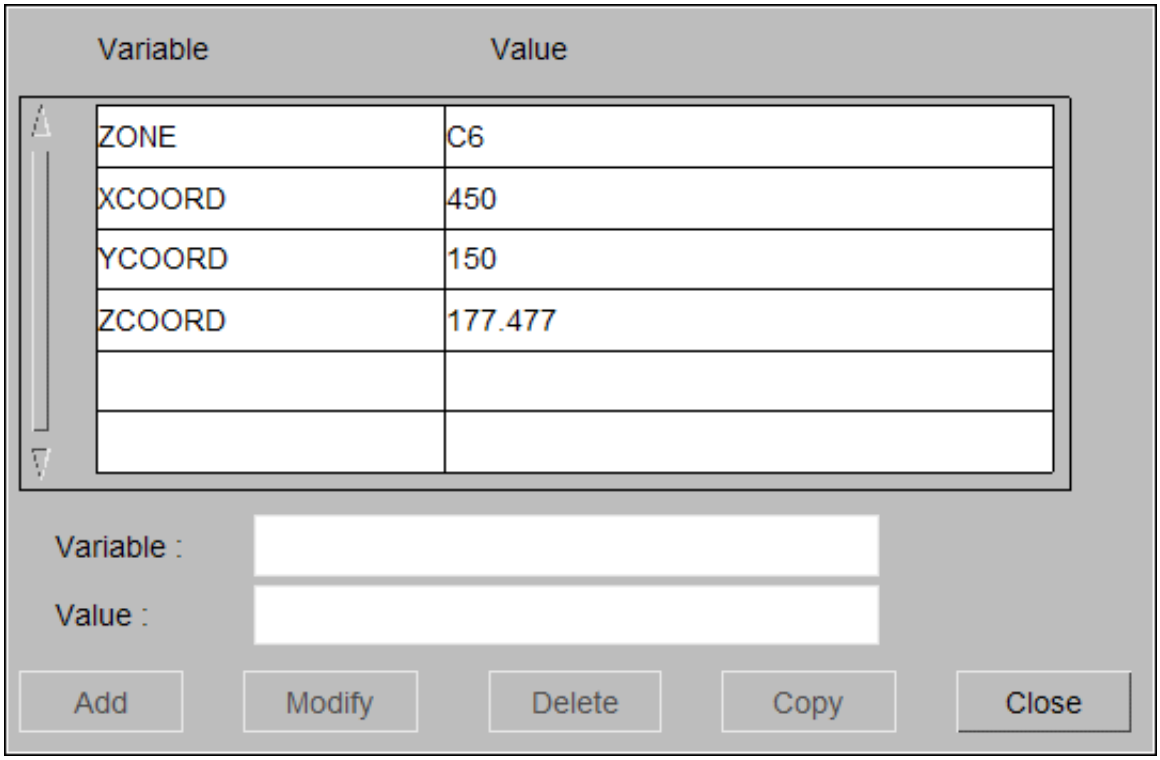
1.6.1.5 Clear Panel

This option can be used to quickly clear any options that have been set. This option is not available if this panel was accessed from the LS-DYNA Submit menu.

1.6.1.6 Save List As

This option can be used to save the currently defined set of REPORTER options to a new LIST file. By default this option will overwrite the Input List.

1.6.2 Variables



This windows allows the user to define variables for Reporter. Specify the variable name and its corresponding value in the relevant boxes and press **ADD** to add them to the list of defined variables. The variables to be fed into Reporter will appear in the greyed out boxes above. In order to delete one of the Variables in the list, enter the variable's name in the variable: box and press **DELETE**. In order to modify one of the variables, enter the variable's name into the Variable: box and press **Modify**. Once you have finished modifying all your variables, press **CLOSE**.

1.6.3 LIST File Format

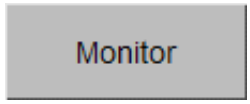
The LIST file can be used to set up multiple inputs for REPORTER. The LIST file format consists of lines containing either Job information or Keywords.

Keyword	
$VARIABLES	Defines a new list of comma seperated Variable names for any following Job Lines. Any Variables defined before this Keyword are deleted. **$VARIABLE, 1st Variable, 2nd Variable, 3rd Variable**
$VARIABLES_ADD	Adds new Variables to the existing list of Variables **$VARIABLE_ADD, 1st Variable, 2nd Variable, 3rd Variable**
$REPORTER_SUMMARY	Defines a set of inputs used to generate a summary report after a set of jobs have been run in LS-DYNA. **$REPORT_SUMMARY, Input file, Reporter Template, 1st Variable, 2nd Variable, 3rd Variable**
$REPORTER_SUMMARY_DIR	Defines the directory used for summary output files **$REPORT_SUMMARY_DIR, Directory**
$REPORTER_OUTPUT	Defines a list of output formats, possible options are REPORTER, HTML, PDF, POSTSCRIPT, VBA, POWERPOINT **$REPORT_OUTPUT, format, format, format...**
$	Comment Line
	All other lines are assumed to contain Job information in the following format. **Input file, Reporter Template, 1st Variable, 2nd Variable, 3rd Variable**

e.g.

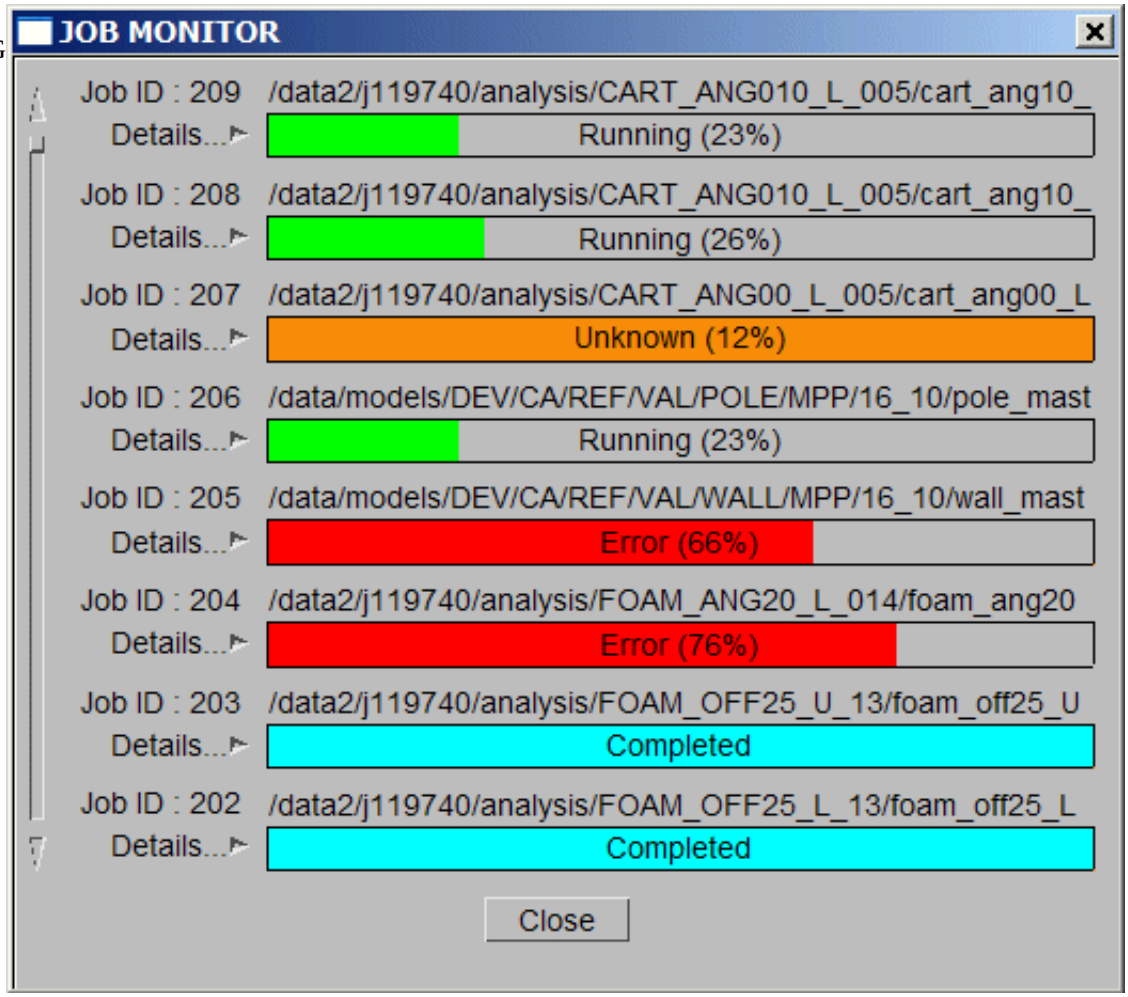
```
$ Define 4 variables for the following jobs
$
$VARIABLE,ID,X-COOD,Y-COORD,Z-COORD
$
$ Setup 4 jobs using the "head_impact.ort" template, with 4 variable values
$
C:\head_impact\r1\head.key,c:\templates\head_impact.ort, RUN 1, 0.03, 0.050, 0.06
C:\head_impact\r2\head.key,c:\templates\head_impact.ort, RUN 2, 0.03, 0.075, 0.06
C:\head_impact\r3\head.key,c:\templates\head_impact.ort, RUN 3, 0.03, 0.100, 0.06
C:\head_impact\r4\head.key,c:\templates\head_impact.ort, RUN 4, 0.03, 0.125, 0.06
$
$ Define a new set of variables
$
$VARIABLE,SUMMARY_ID
$
$ Add another variable
$
$VARIABLE_ADD,
$
$ Set up a summary report
$
$REPORTER_SUMMARY, , c:\templates\head_summary.ort
$REPORTER_SUMMARY_DIR,c:\head_impact\summary
$
$ Specify output file formats
$
$REPORTER_OUTPUT,REPORTER,HTML,PDF
```

1.7 Monitor



This option will display the Oasys Job Monitoring Window. If JOB MONITORING has been setup (see sections 2.3.38 and 5.0) this Window will display the status of LS-DYNA jobs that are currently running and those that have recently completed.

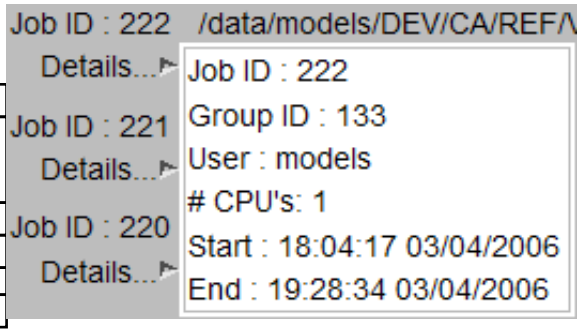
By default the job monitor window will display information on any jobs that have been submitted within the previous 3 days.



All LS-DYNA jobs that are submitted with Job Monitoring enabled are assigned one of the following 6 statuses

Pending		Job has not yet started.
Initilising		Job has started and is still initilising.
Running		Job is running. The %age completed based on the termination time defined in the model is also shown.
Error		Job has terminated with an error. The %age completed before the job terminated is displayed.
Unkown		The Job monitoring server has not had any contact with the monitoring client associated with the job for more than 10 minutes. The %age completed before contact was lost is displayed.
Completed		The job completed successfully.

Right clicking on the Job ID assigned to each job will display the following information for a job.

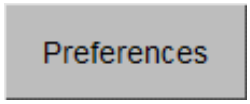


Job ID	ID assigned to the job by the Job Monitoring Server
Group ID	Group ID. If a job is one of a group of jobs sumbitted using the Input List option then all the jobs will be assigned the same group ID.
User	Name of the user who submitted the job
#CPU's	Number of cpu's used to run the job
Start	Job start time
End	Completion time

1.8 Utilities

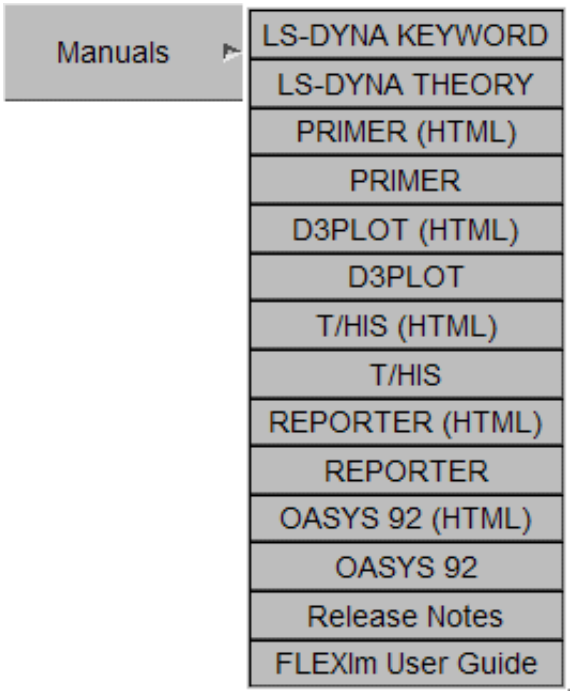
This option will display an optional menu of additional utility programs. The exact list of programs given will depend on the options set up by the system administrator, see Sect 2.7: Adding items to the "Utilities" menu for more information.

1.9 Preferences



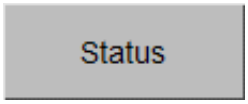
Selecting this tab will open up the **Oasys Preferences editor**. This is a graphical interface which allows for manual editing of the **oa_pref** file. For more information on the Oasys Preferences editor, see Section 4

1.10 Manuals



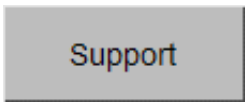
This option will only be available if the shell has been able to find a copy of the Adobe Acrobat software to use to display the on-line manuals. If the Acrobat software is available then this button will display a menu listing the manuals that are available for reading and printing.

1.11 Status



This option will display information on the programs that have been licensed.

1.12 Support



This option will display support contact information.

1.13 Exit

This option will exit from the X-Windows shell.

1.14 Command Line Options

These options can be used to automatically start up programs and set default values.

Command	[Options]	Action
su	jobname	Open Submit window for job 'jobname'
pr	NONE	Start Oasys PRIMER
pl	NONE	Start Oasys D3PLOT
th	NONE	Start Oasys T/HIS

1.15 Command Line Submission Shell

When starting the shell on a UNIX system a command line version of the submission shell is available. It will start automatically if an X-connection cannot be established, or manually by putting 'cmd' as a command line option, i.e. 'oasys_93 cmd'.

The following screen will be displayed in the terminal: (Note that it may differ slightly depending on preference settings)

```
    Options                          Current selection
------------------------- LS-DYNA ----------------------------
(1) Code Version                     LS970 (v6763)
------------------------- Job Options ------------------------
(2) Input File                       *** Nothing Selected ***
(3) Format                           Keyword
(4) CPU Limit                        0.00 Seconds
(5) Memory Limit                     Memory1 40.00 MWords
(6) Increase Memory If Required      On
(7) Filename Format                  Arup '.ptf...'
(8) Optional Files
------------------------- Parallel Options -------------------
(9) CPUs                             2 CPUs, Consistency Flag On
------------------------- Submission Options ----------------
(11)Submission Type                  Queue, Now 00:00
(12)Queue CPU Limit                  0.00 Seconds
(13)Queue Memory Limit               Memory 150.00 MWords
(14)Queue Name                       dyna, CPU Limit: 0
(15)Queue Options                    2 CPU x 1 Node
(99)  Submit      (88)  Reset       (77)  Status/Kill    (-1)    Quit
```

The terminal window may have to be expanded for the contents to fit.

1.15.1 How To Use The Command Line Submission Shell

All the options available on the graphical version of the shell are available, except Restart, T/His and Reporter options. The defaults are the same as the graphical version.

The menu is set out with the options on the left and the current selection on the right.

The options are accessed by typing the number at the prompt and pressing return. This will bring up a menu with further options to make your selection. To return to the main menu, type in '-1' and press return. To quit from the program type in '-1' and press return in the main menu.

1.15.2 Code Version

At the main menu type in '1' and press return. A menu will be displayed with options for the code type:

```
Select the code type
(1) SMP (2) MPP (-1) Main menu
```

Select the required code type to bring up a menu with options for the precision:

```
Select the precision
(1) Single (2) Double (-1) Main Menu
```

Depending on the options chosen a menu will be displayed with the available LS-Dyna code versions (will differ depending on contents of dyna_versions file):

```
Select the code version
(1) LS970 (v6763) SP SMP RHE 3.0
(2) LS970 (v5434a) SP SMP RHE 3.0
(3) LS971 (R2 v7600_1224) SP SMP RHE 4.0
(4) LS971 R3_1 SP SMP
(-1) Main Menu
```

Select the required code version. The main menu will be displayed with the selected code version shown on the right hand side.

1.15.3 Input File

At the main menu type in '2' and press return. A menu will be displayed asking for the file name for the job:

```
Current directory: /u/mid/test
Enter the file name for the job (*.k*). (-1) Main menu
```

The directory the shell was started in is shown at the top of the menu. File names can be entered relative to this directory. For example, if the current directory is /u/mid/test and the job to run is in /u/mid/test/job/to_run.key then you can enter 'job/to_run.key' and press return. If the job to run is in /u/mid/to_run.key you can enter '../to_run.key'. Alternatively, the full path name can be entered.

If the file does not exist or is an invalid type, i.e. doesn't end in *.k* for keyword files, *.inf* for fixed format files or *.lst* for list files, you will be propmpted to enter a file again.

Once a valid file has been chosen the main menu will be displayed with the full path name of the file selected shown on the right hand side.

1.15.4 File Format

At the main menu type in ’3’ and press return. A menu will be displayed asking for the file format for the job:

```
Select the job format
(1) Keyword (2) Fixed (3) List (-1) Main menu
```

Select the required format. If List was selected and the submission type is not Queue a further menu will be displayed asking whether the jobs should be sequential or not:

```
Turn sequential submission on or off
(1) Off (2) On (-1) Main menu
```

Select the required option. The main menu will be displayed with the selected format shown on the right hand side.

Note: Selecting a different job format to the current selection will clear the Input File selection.

1.15.5 CPU Limit

At the main menu type in ’4’ and press return. A menu will be displayed asking for the job CPU limit units:

```
Select the job cpu limit units
(1) Seconds (2) Minutes (3) Hours (-1) Main menu
```

Select the required units to bring up a menu asking for the job CPU limit:

```
Enter the job cpu limit. (-1) Main menu
```

Enter the required limit (can be an integer, decimal, or in the form 1.5E4). The main menu will be displayed with the selected job CPU limit on the right hand side.

1.15.6 Memory Limit

At the main menu type in ’5’ and press return. A menu will be displayed asking for the job memory limit units:

```
Select the job mem limit units
(1) Words (2) M Words (-1) Main menu
```

Select the required units to bring up a menu asking for the job memory limit:

```
Enter the job memory limit. (-1) Main menu
```

Enter the required limit (can be an integer, decimal, or in the form 1.5E4). If the Dyna version selected is MPP a second menu will ask for the other memory limit:

```
Enter the job memory2 limit. (-1) Main menu
```

The main menu will be displayed with the selected job memory limit on the right hand side.

1.15.7 Increase Memory If Required

At the main menu type in ’6’ and press return. A menu will be displayed asking if the job memory limit should be increase if required:

```
Increase the memory if required
(1) Off (2) On (-1) Main menu
```

Select the required option. The main menu will be displayed with the selected option on the right hand side.

1.15.8 Filename Format

At the main menu type in ’7’ and press return. A menu will be displayed asking for the filename format:

```
Select the filename format
(1) ARUP ’.ptf ...’ (2) LSTC ’.d3plot ...’ (-1) Main menu
```

Select the required option. The main menu will be displayed with the selected option on the right hand side.

1.15.9 Optional Files

```
    Options                         Current selection
------------------------- Input Files --------------------------
(1) Stress Initialization (.sif)    Off
(2) Interface Segment (.isf2)       Off
(3) VDA Geometry (.vda)             Off
(4) CAL3D Input (.c3d)              Off
(5) TOPAZ3D Temperature File (.htf) Off
(6) MADYMO Input File               Off
(7) REMAP Option                    Off
------------------------- Output Files -------------------------
(8) Contact Force File (.ctf)       Off
(9) Interface Segment (.isf1)       Off
(10)Static Database File (.ztf)     On
(11)Winfrith Crack File (.crf)      Off
(12)FSIFOR File                     Off
------------------------- Input Options ------------------------
(13)ENDTIM                          0.000000
(14)ENDCYC                          0
(15)PARA                            0
------------------------- Binary File Size ---------------------
(16)Binary File Size                40
(-1)  Main menu
```

Options 1 - 12 can be toggled on and off simply by selecting them.

The analysis end time can be specified by selecting option 13. The following menu will be displayed:

```
Enter the end time. (-1) Optional files menu
```

Enter the required end time (can be an integer, decimal, or in the form 1.5E4). The optional files menu will be shown with the selected end time on the right hand side.

The analysis end cycle can be specified by selecting option 14. The following menu will be displayed:

```
Enter the end cycle. (-1) Optional files menu
```

Enter the required end cycle (an integer). The optional files menu will be shown with the selected end cycle on the right hand side.

The analysis para value can be specified by selecting option 15. The following menu will be displayed:

```
Para value
(1) Zero (2) One (-1) Optional files menu
```

Select the required option. The optional files menu will be shown with the selected para value on the right hand side.

To go back to the main menu type in '-1' and press return.

1.15.10 CPUs

At the main menu type in '9' and press return. A menu will be displayed asking for the number of CPUs:

```
Enter the number of cpus. (-1) Main menu
```

Enter the required number of CPUs (an integer). If the number of CPUs is too high for the code type (limit is defined in oa_pref) then you will be asked to enter again. Once a valid number has been entered a menu will be displayed asking if the consistency flag should be on or off:

```
Turn the consistency flag on or off
(1) Off (2) On (-1) Main menu
```

Select the required option. The main menu will be shown with the selected number of CPUs and the consistency flag status on the right hand side.

1.15.11 Node Options

This option will only be available if the submission type is not queue and the code type is MPP.

If it is available then at the main menu type in '10' and press return. A menu will be displayed asking for the node option:

```
Select the node option
(1) Local Host (2) Node File (3) Node List (-1) Main menu
```

Select the required option. If Local Host was selected the main menu will be displayed. If Node File was selected a further menu will be displayed asking for the location of the file:

```
Current directory: /u/mid/test
Enter the node file name. (-1) Main menu
```

The directory the shell was started in is shown at the top of the menu. In the same way as input files, node files can be specified relative to this directory or a full path name can be entered. No check is made to see if the file exists.

If Node List was selected a further menu will be displayed asking for a string:

```
Enter the node list string. (-1) Main menu
```

Enter the text and press return. The main menu will be shown with the selected option and file or node list string on the right hand side.

1.15.12 Submission Type

At the main menu type in ’11’ and press return. A menu will be displayed asking for the submission type:

```
Select the submission type
(1) Online
(2) Background
(3) Batch (unavailable)
(4) Queue (unavailable)
(-1) Main menu
```

Some submission types may be unavailable depending on the settings in the oa_pref file. If an unavailable option is chosen you will be asked to select again.

If Background or Queue are chosen a further menu will be displayed asking for the submission day:

```
Select the submission day
(1) Now (2) Monday (3) Tuesday (4) Wednesday
(5) Thursday (6) Friday (7) Saturday (8) Sunday (-1) Main menu
```

Select the required option to bring up a menu for the start time hour:

```
Enter the start time hour (0 - 23) (-1) Main menu
```

Enter the required hour to bring up a menu for the start time minute:

```
Enter the start time minute (0 - 59) (-1) Main menu
```

Enter the required minute. The main menu will be displayed with the selected submission type and start time, if applicable, on the right hand side.

Note: If you do not want a delay choose a submission time of Now 00:00.

1.15.13 Queue CPU Limit

If the submission type is Queue then an option to set the queue cpu limit will be available. At the main menu type in ’12’ and press return. A menu will be displayed asking for the queue CPU limit units:

```
Select the queue cpu limit units
(1) Seconds (2) Minutes (3) Hours (-1) Main menu
```

Select the required units to bring up a menu asking for the queue CPU limit:

```
Enter the job cpu limit. (-1) Main menu
```

Enter the required limit (can be an integer, decimal, or in the form 1.5E4). The main menu will be displayed with the selected queue CPU limit on the right hand side.

1.15.14 Queue Memory Limit

If the submission type is Queue then an option to set the queue memory limit will be available. At the main menu type in ’13’ and press return. A menu will be displayed asking for the queue memory limit units:

```
Select the queue mem limit units
(1) Words (2) M Words (-1) Main menu
```

Select the required units to bring up a menu asking for the queue memory limit:

```
Enter the queue memory limit. (-1) Main menu
```

Enter the required limit (can be an integer, decimal, or in the form 1.5E4). The main menu will be displayed with the selected queue memory limit on the right hand side.

1.15.15 Queue Name

If the submission type is Queue then an option to choose the queue name will be available. At the main menu type in ’14’ and press return. A menu will be displayed asking for the queue name:

```
Select the queue name
(1) Dyna
(2) Nastran
(3) Other
(-1) Main Menu
```

The options available will depend on the contents of the ’oasys_queue’ file.

Select the required option. The main menu will be displayed with the selected queue shown on the right hand side.

1.15.16 Queue Options

If the submission type is Queue then an option to specify some queue options will be available. At the main menu type in ’15’ and press return. A menu will be displayed with the available commands, depending on the queue and number of cpus chosen (will differ depending on the contents of the ’oasys_queue’ file):

```
Select the queue command
(1) 2 CPUs x 1 Node
(2) 1CPUs x 2 Nodes
(-1) Main Menu
```

Select the required option. The main menu will be shown with the selected queue command.

1.15.17 Submit

Once you are happy with the options chosen, at the main menu type in ’99’ and press enter to submit the job.

If output files already exist a menu asking whether to overwrite or delete them will be displayed:

```
Some output files already exist
(1) Overwrite (2) Delete (3) Cancel
```

Select the required option and if cancel was not selected the job will be submitted.

1.15.18 Reset

To reset the selected options to defaults at the main menu type in ’88’ and press enter.

1.15.19 Status / Kill

The status of a run can be queried or killed by typing in ’77’ and enter at the main menu. The following menu will be displayed:

```
Options Current selection
-------------------------------------------------------------
(1) SW1 - Write a Restart File and Terminate Off
(2) SW2 - Report Time and Cycle Number On
(3) SW3 - Write a Restart File and Continue Off
(4) SW4 - Write a Plot State and Continue Off
(5) FILE - Send Ouput from SW2 to a File Off

(99) Apply (-1) Main menu
```

Select the required option to toggle what to do. Select Apply to carry out the option selected.

Note: A job must be selected before this menu can be displayed.

2 Customising the Oasys Shell

This section is relevant to those responsible for installing the Oasys software.

2.1 UNIX/LINUX Installation

On UNIX/LINUX systems the Oasys Shell is accessed via the "oasys_93" command. If you have installed the software using the install script then the oasys_93 command file (in the /executables directory) will automatically be updated to contain the correct path for the directory the software was installed in and the name of the license server for the OASYS software installation. .

In addition to specifying the installation directory and the license server the "oasys_93" command file can also be set a number of other options on UNIX/LINUX systems.

After installing the software the "oasys_93" command file should contain the following. (This assumes the software was loaded in a directory called **/prg** and that the license server in a machine called **atghps50**.

```
#!/bin/csh -f
  onintr start_flush
#
# Set OASYS to point to the directory containing the software
#
  setenv OASYS "/prg/oasys93/executables"
#
#
# Set LM_LICENSE_file to either the Oasys flexlm license file or
# the license server
#
# e.g    setenv LM_LICENSE_FILE       $OASYS/oasys_flexlm.dat
# or     setenv LM_LICENSE_FILE       @hostname
#
  setenv LM_LICENSE_FILE @atghps50
#
#
# To setup the monitor server the following is needed
# setenv OAMONSERVER hostname:26000
#
  setenv OAMONSERVER atghps50:26000
#
#
# Set LSTC_FILE to either the lstc license file or the server
#
# e.g.   setenv LSTC_FILE             $OASYS/LSTC_FILE
#
# or     setenv LSTC_LICENSE_SERVER   hostname
#        setenv LSTC_NOCLIENT         ON
#        setenv LSTC_LICENSE          network
#
#  setenv LSTC_FILE $OASYS/LSTC_FILE
  setenv LSTC_LICENSE_SERVER atghps50
  setenv LSTC_NOCLIENT ON
  setenv LSTC_LICENSE network
#
#
# Set NETSTART to the command used to start NETSCAPE on the system
#
  setenv NETSTART /usr/bin/netscape
#
# Other environment variables
#
  setenv USERID ‘whoami‘
  set noglob
#
# Set EDITOR (if not set) to the command to invoke an external editor. This
# EDITOR is currently used for editing comment lines in Oasys PRIMER.
#
# if(! $?EDITOR) then
#   setenv EDITOR /usr/bin/kedit # LINUX
```

```
#   setenv EDITOR /usr/dt/bin/dtpad # UNIX (CDE)
# endif
#
#
# Environment variables for post processors
#
# If FILE_SKIP has not been set then set it to 5
#
  if(! $?FILESKIP) then
    setenv FILE_SKIP 5
  endif
#
# MACHINE SPECIFIC LINES
# ======================
#
# extra line needed for some IBM machines
# setenv LANG En_US
#
# Extra line needed for SUN Solaris Machines
# setenv LD_LIBRARY_PATH /usr/openwin/lib
#
# Ove Arup fix: if terminal type is a vt100 then unset the DISPLAY
# variable so that Teks and PCs are happy:
#
  if ( $TERM != "vt100" ) then
    set cwd = ‘pwd‘
    setenv PWD $cwd
    $OASYS/xshell_93 -n OASYS $*
    if ($status != "1" ) goto exit
  else
    echo "TERM type is vt100. Cannot run shell."
  endif
#
# exit
#
exit:
  exit
```

The following parameters will require modifying in accordance with your system layout

- setenv OASYS <option>
- setenv LM_LICENSE_FILE <option>
- setenv LSTC_FILE / LSTC_LICENSE_SERVER <option>
- setenv OAMONSERVER <option>
- setenv NETSTART <option>
- setenv MENU_AUTO_CONFIRM <option> *(optional)*
- setenv FILE_EXIST_ACTION <option> *(optional)*
- setenv ECHO_PREFERENCE <option> *(optional)*

2.1.1 setenv OASYS <option>

The Oasys shell variable must be modified so that it references the directory in which the shell is loaded. i.e if the software has been loaded in:

/prg/oasys93/executables

set this line to:

setenv OASYS "/prg/oasys93/executables"

This line should be set automatically by the installation script.

2.1.2 setenv LM_LICENSE_FILE <option>

The variable is used to locate a valid license for the Oasys software.

2.1.2.1 Floating Network License

If you are running the software using a license server then this variable should be set to point to the license server machine using the machine's hostname.

i.e **setenv LM_LICENSE_FILE @hostname**
or **setenv LM_LICENSE_FILE port@hostname** if you have specified a non default port for the server.

2.1.2.2 Fixed Stand-alone Licenses

If you are using a node locked license file then this variable should be set to point to the location of the license file.

i.e **setenv LM_LICENSE_FILE <INSTALL_DIR>/oasys_flexlm.dat**

2.1.2.3 Multiple FLEXlm license files

If you have other software that uses FlexLM then this Environment variable may already be set to point to a license file or a license server. If this variable is already set then you may add the Oasys license server or file by specifying a colon separated list of values.

i.e **setenv LM_LICENSE_FILE port@hostname1: @hostname2**

Alternatively OASYS_LICENSE_FILE can be used instead of using LM_LICENSE_FILE

i.e **setenv OASYS_LICENSE_FILE @hostname**

2.1.3 setenv LSTC_FILE / LSTC_LICENSE_SERVER <option>

On UNIX/LINUX machines LS-DYNA can use either a nodelocked license or a floating license system.

If you are using a nodelocked license then LSTC_FILE should be set to the full pathname of the license file. By default this file should be called 'LSTC_FILE' and it should be located in the 'executables' directory.

i.e **setenv LSTC_FILE $OASYS/LSTC_FILE**

If you are using the floating license system then the variables LSTC_LICENSE_SERVER, LSTC_NOCLIENT and LSTC_LICENSE should be set as follows.

i.e **setenv LSTC_LICENSE_SERVER hostname** where hostname is the LSTC license server
setenv LSTC_NOCLIENT ON
setenv LSTC_LICENSE network

2.1.4 setenv OAMONSERVER <option>

This environment variable is used to specify the server and port for the Oasys Job Monitor (see section 5). The environment variable should be set to **`hostname:port`**

- If the port number is changed away from 26000, then the environment variable setting in the Job Monitor Server startup script needs to be altered to match this port number.
- If this port number is changed from 26000, it is up to the installing user to make sure that the port is not used by any other service on the server host machine.

2.1.5 setenv NETSTART <option>

PRIMER, T/HIS and D3PLOT 9.3 use an HTML based help system. For this to operate correctly this variable should be set to the command that has to be typed at the command line to run NETSCAPE.

2.1.6 setenv MENU_AUTO_CONFIRM <option>

This variable is often used when replaying command files which, when recorded, paused and asked the user to confirm things. (For example HELP and Warning messages.) Possible options for this variable are, **true** and **false**.

If the variable is set **(true)** then these will not pause and will behave as if the user had pressed "OK" - meaning that command files can play back without user intervention.

2.1.7 setenv FILE_EXIST_ACTION <option>

This variable controls the action to be taken when opening a file for output, and the file already exists. Possible options for this variable are **"none"**, **overwrite** and **append**.

Normally you will be prompted for the action to be taken when a file selected for output already exists. However if this variable is set to overwrite or append then the relevant action will be taken automatically.

This is generally used when playing automatic post-processing batch scripts

2.1.8 setenv ECHO_PREFERENCE <option>

If this variable is set to "1" then any command line arguments used to start T/HIS, PRIMER or D3PLOT will be echoed to the screen along with any settings read from preference files.

2.2 Windows NT/2000/XP Installation

When the Oasys Software is installed a set of icons will automatically be added to:

Start -> Programs > oasys93

After loading the Oasys software the following system variables should be set up.

- LM_LICENSE_FILE
- LSTC_FILE / LSTC_LICENSE_SERVER <option>
- OAMONSERVER <option>
- HOME
- MENU_AUTO_CONFIRM *(optional)*
- FILE_EXIST_ACTION *(optional)*
- ECHO_PREFERENCE *(optional)*

Oasys recommend that these variables are set up by a user with Administrator privileges so that they then apply to all users on the system.

2.2.1 LM_LICENSE_FILE

The variable is used to locate a valid license for the Oasys software.

2.2.1.1 Floating Network License

If you are running the software using a license server then this variable should be set to point to the license server machine using the machine's hostname.

i.e **LM_LICENSE_FILE = @hostname**
or **LM_LICENSE_FILE = port@hostname** if you have specified a non default port for the server.

2.2.1.2 Fixed Stand-alone Licenses

If you are using a node locked license file then this variable should be set to point to the location of the license file.

i.e **LM_LICENSE_FILE = <INSTALL_DIR>/oasys_flexlm.dat**

2.2.1.3 Multiple FLEXlm license files

If you have other software that uses FlexLM then this Environment variable may already be set to point to a license file or a license server. If this variable is already set then you may add the Oasys license server or file by specifying a colon separated list of values.

i.e **LM_LICENSE_FILE = port@hostname1;@hostname2**

Alternatively OASYS_LICENSE_FILE can be used instead of using LM_LICENSE_FILE

i.e **OASYS_LICENSE_FILE = @hostname**

2.2.2 LSTC_FILE / LSTC_LICENSE_SERVER <option>

This variable should be set to point to the name of the LSTC security file.

2.2.3 OAMONSERVER <option>

This variable is used to specify the server and port for the Oasys Job Monitor (see section 5). The variable should be set to **`hostname:port`**

- If the port number is changed away from 26000, then the environment variable setting in the Job Monitor Server startup script needs to be altered to match this port number.
- If this port number is changed from 26000, it is up to the installing user to make sure that the port is not used by any other service on the server host machine.

2.2.4 HOME

The OASYS software uses a preference file to control a number of settings. By default the software will look for the preference file in 3 locations, the installation directory, $HOME and the current working directory. The global preference file located in the installation directory is read first and then any user specific options are read from the preference file located in $HOME.

If this variable is not set the user will not be able to set up there own user preferences.

2.2.5 MENU_AUTO_CONFIRM

This variable is often used when replaying command files which, when recorded, paused and asked the user to confirm things. (For example HELP and Warning messages.) Possible options for this variable are **"none"**, **overwrite** and **append**.

If the variable is set **(true)** then these will not pause and will behave as if the user had pressed "OK" - meaning that command files can play back without user intervention.

2.2.6 FILE_EXIST_ACTION

This variable controls the action to be taken when opening a file for output, and the file already exists. Possible options for this variable are **"none"**, **overwrite** and **append**.

Normally you will be prompted for the action to be taken when a file selected for output already exists. However if this variable is set to overwrite or append then the relevant action will be taken automatically.

This is generally used when playing automatic post-processing batch scripts

2.2.7 ECHO_PREFERENCE

If this variable is set to "1" then any command line arguments used to start T/HIS, PRIMER or D3PLOT will be echoed to the screen along with any settings read from preference files.

2.2.8 Setting Environment Variables

To set these system variables, activate the control panel, using

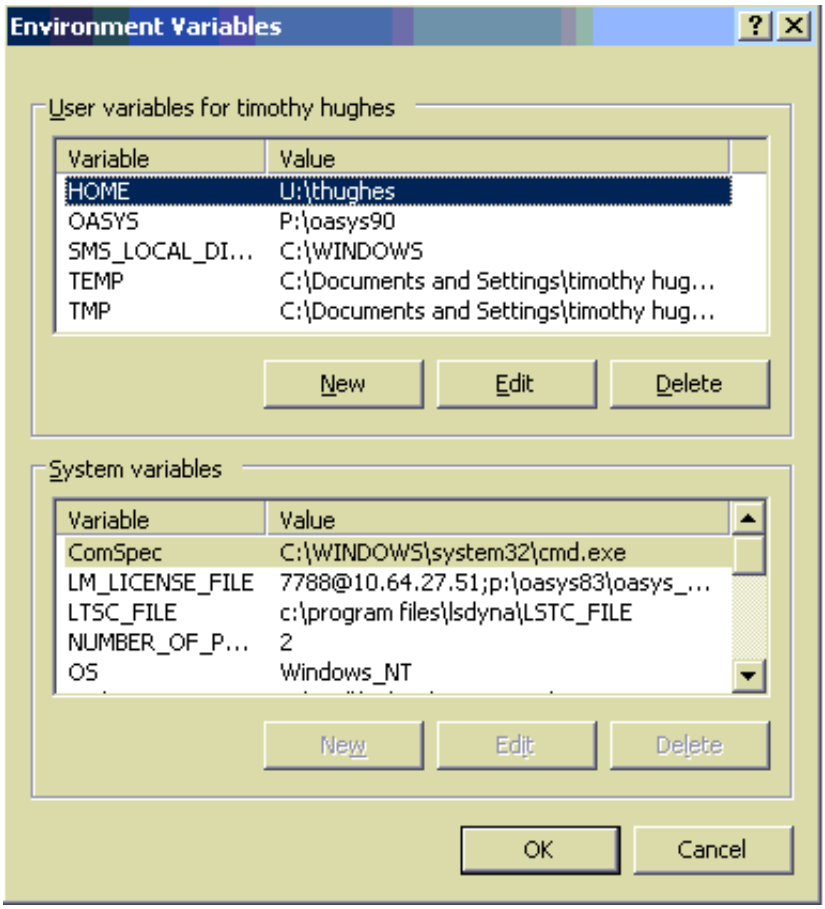
Windows NT and 2000: **Start -> Settings -> Control Panel**
Windows xp: **Start -> Control Panel**

and then select the System Icon.

Windows NT - Followed by the Environment tab.
Windows 2000 and XP - Followed by the Advanced tab and then the Environment button.

This will bring up the window displayed left. To set up a new Environment Variable enter the variable's name in the Variable box followed by the variable's Value in the Value Box. After setting up each new Environment Variable press **Set** before entering the next new Environment Variable.

Finally, after setting up all the new variables, select **Apply** followed by **OK** to dismiss the System Properties menu.



2.3 Customising the GUI Shell

The 'oa_pref' file controls the setup of a number of the programs in the Oasys 9.3 software suite. Most of the programs will look for this file in the following 3 locations to allow individual users to customise the programs for their own needs :

- The current working directory
- The user's login directory
- The directory containing the Oasys 93 executables

To stop users trying to override the system setting the **'xshell_93'** shell will only look for this file in the directory containing the Oasys 93 executables. This section only deals with the options for setting up the GUI shell, the options for the other programs are covered in the relevant manuals.

Any line in the 'oa_pref' file that does not start with the string **'shell*'** is ignored by the XSHELL, normally Oasys will prefix any comment lines with a # for clarity. The relevant sections of this file follows below.

```
# Preferences file for OASYS software.
#
# SHELL stuff:
#
# Definition          Type    Valid arguments                      Default
# online              logical TRUE or FALSE                        TRUE
# background          logical TRUE or FALSE                        TRUE
# batch               logical TRUE or FALSE                        TRUE
# queue               logical TRUE or FALSE                        TRUE
# default             string  ONLINE or BACKGROUND or BATCH or     ONLINE
                              QUEUE
# batch_type          string  NQS,LSF,SGE,PBS,PBSPRO7 or PBSPRO71 NQS
# queue_output_file   logical Add output file directive to job     TRUE
                              script
# queue_error_file    logical Add error file directive to job      TRUE
                              script
```

```
# queue_error_path    logical Add job path to output/error        TRUE
                            directive in job script
# queue_memory        real    Batch Queue Memory Size             15000000
# queue_memory_units  string  WORDS or MWORDS                     WORDS
# queue_cpu           real    Batch Queue CPU Limit               0
# queue_cpu_units     string  SECONDS, MINUTES or HOURS           SECONDS
# queue_space         real    Batch Queue File Space Limit 1024   1024
# queue_machine       string  Name of LSF queuing machine
# request_cpu_limit   logical TRUE or FALSE                       TRUE
#                     logical TRUE or FALSE                       TRUE
request_memory_limit
# request_space_limit logical TRUE or FALSE                       FALSE
# system_cpu          real    Minimum System Time (seconds)       90
# job_format          string  KEYWORD or FIXED                    KEYWORD
# file_names          string  ARUP or LSTC                        ARUP
# job_memory          real    Job Memory Size                     9000000
# job_memory_units    string  WORDS or MWORDS                     WORDS
# job_cpu             real    Job CPU Limit                       0
# job_cpu_units       string  SECONDS, MINUTES or HOURS           SECONDS
# allow_mem_change    logical TRUE or FALSE                       TRUE
# file_size           integer Binary File Size                    7
# write_ctf           logical TRUE or FALSE                       FALSE
# write_ztf           logical TRUE or FALSE                       TRUE
# batch_display       string  TRUE or FALSE
# keep_files          logical TRUE or FALSE                       FALSE
# d3plot_version      string  name of D3PLOT executable           d3plot93.exe
# d3plot64_version    string  name of 64 bit D3PLOT executable    d3plot93_64.exe
# d3plot_default      integer default D3PLOT version (32 or 64)   32
# this_version        string  name of T/HIS executable            this93.exe
# this64_version      string  name of 64 bit T/HIS executable     this93_64.exe
# this_default        integer default T/HIS version (32 or 64)    32
# primer_version      string  name of PRIMER executable           primer93.exe
# primer64_version    string  name of 64 bit PRIMER executable    primer93_64.exe
# primer_default      integer default PRIMER version (32 or 64)   32
# reporter_version    string  name of REPORTER executable         reporter93.exe
# shell_release       string  version # displayed for shell       9.3
# max_cpus            integer Maximum number of CPUS              1
# max_mpp_cpus        integer Maximum number of CPUs for MPP      1
# default_cpus        integer Default number of CPUs for SMP      1
# default_mpp_cpus    integer Default Number of CPUs for MPP      1
# max_node_cpus       integer Maximum number of CPUs per node for 2
                            MPP jobs
# pack_nodes          logical Pack MPP jobs on the minimum number TRUE
                            of nodes
# submit_shell        string  CSHELL or BSHELL                    CSHELL
# unix_type           string  SYSTEM5 or BSD                      SYSTEM5
# manual_reader       string  location of ADOBE ACROBAT reader    acroread
#                     logical TRUE or FALSE                       TRUE
enable_job_monitoring
# temp_folder         string  Location to write .bat file to on a C:\TEMP
                            PC
shell*online: TRUE
shell*background: TRUE
shell*batch: TRUE
shell*queue: TRUE
shell*default: ONLINE
shell*batch_type: NQS
shell*queue_output_file: TRUE
shell*queue_error_file: TRUE
shell*queue_error_path: TRUE
shell*queue_memory: 15000000
shell*queue_memory_units: WORDS
```

```
shell*queue_cpu: 0
shell*queue_cpu_units: SECONDS
shell*batch_type: NQS
shell*queue_space: 1024
shell*queue_machine:
shell*request_cpu_limit: TRUE
shell*request_memory_limit: TRUE
shell*request_space_limit: FALSE
shell*system_cpu: 90
shell*job_format: KEYWORD
shell*file_names: ARUP
shell*job_memory: 9000000
shell*job_memory_units: WORDS
shell*job_cpu: 0
shell*job_cpu_units: SECONDS
shell*allow_mem_change: TRUE
shell*file_size: 7
shell*write_ctf: FALSE
shell*write_ztf: TRUE
shell*batch_display:
shell*keep_files: FALSE
shell*d3plot_version: d3plot93.exe
 shell*d3plot64_version: d3plot93_64.exe
 shell*d3plot_default: 32
 shell*this_version: this93.exe
 shell*this64_version: this93_64.exe
 shell*this_default: 32
 shell*primer_version: primer93.exe
 shell*primer64_version: primer93_64.exe
 shell*primer_default: 32
 shell*reporter_version: reporter93.exe
 shell*shell_release: 9.3
shell*max_cpus: 1
shell*max_mpp_cpus: 1
shell*default_cpus: 1
shell*default_mpp_cpus: 1
shell*max_node_cpus: 2
shell*pack_nodes: TRUE
shell*submit_shell: CSHELL
shell*unix_type: SYSTEM5
shell*manual_reader: acroread
shell*enable_job_monitoring: TRUE
shell*temp_folder: C:\TEMP
```

2.3.1 shell*online / shell*background / shell*batch / shell*queue

The XSHELL can submit LS-DYNA jobs using four different options. Any of these methods can be made inaccessible by setting the relevant variable to **FALSE**. If an option is not available on a machine then the variable should also be set to **FALSE**.

shell*online - Allows jobs to be submitted interactively. Delayed start times cannot be specified.
shell*background - Allows jobs to be submitted to background. If a delayed start times is specified then the job will be submitted using the Unix ’at’ command.
shell*batch - Allows jobs to be submitted using the Unix ’batch’ command. Delayed start times cannot be specified.
shell*queue - Allows jobs to be submitted to NQE style batch queues using ’qsub’ or equivalent commands. Delayed start times,CPU/Memory limits and accounts may be specified.

If **shell*queue** is set to **FALSE** then sections 2.3.3 to 2.3.10 can be ignored.

2.3.2 shell*default

This variable controls the default option that will be used to submit LS-DYNA jobs. It should be set to either **ONLINE**, **BACKGROUND**, **BATCH**, or **QUEUE** to select the required default.

2.3.3 shell*batch_type

This variable controls the type of queue the **QUEUE** command (see shell*online / shell*background / shell*batch / shell*queue) submits the job to. At present this variable may be set to **NQS**, **LSF, SGE** (SUN GRID ENGINE), **PBS, PBSPRO7** and **PBSPRO71**. Due to the limitations of some of the queuing systems not all options are available with all queue types, see table below.

Function	NQS	PBS / PBSPRO7 / PBSPRO71	LSF	SGE
Analysis Start Time	Available	Available	Available	Unavailable
Analysis Start Day	Available	Available	Unavailable	Unavailable

2.3.4 shell*queue_output_file

This variable controls if the shell writes a queue directive to specify a file for output when a job is submitted to a queueing system. If this option is set to **TRUE** then the queue will add the following line to the top of the job submission script.

Queue Type	**Command**
NQS	#QSUB -o *"job_directory"/"jobname".log*
PBS / PBSPRO7/ PBSPRO71	#PBS -o *"job_directory"/"jobname".log*
SGE	#QSUB -o *"job_directory"/"jobname".log*
LSF	#BSUB -o *"job_directory"/"jobname".log*

2.3.5 shell*queue_error_file

These variable controls if the shell writes a queue directive to specify a file for errors when a job is submitted to a queueing system. If this option is set to **TRUE** then the queue will add the following line to the top of the job submission script.

Queue Type	**Command**
NQS	#QSUB -eo #QSUB -o *"job_directory"/"jobname".err*
PBS / PBSPRO7/ PBSPRO71	#PBS -e*"job_directory"/"jobname".err*
SGE	#QSUB -e *"job_directory"/"jobname".err*
LSF	#BSUB -e *"job_directory"/"jobname".err*

2.3.6 shell*queue_error_path

This option can be used to specify if the queue directives for the output and error files should contain the job path or not. By default this option is set to **TRUE.**

2.3.7 shell*queue_memory

This variable controls the value used for the default Queue Memory limit. The required value should be specified using the units defined by the **shell*queue_memory_units** variable (see Queue Memory Units). A value of 0 means that the job will be submitted with a unlimited Queue Memory.

2.3.8 shell*queue_memory_units

This variable controls whether the default Queue Memory limit is specified in words or megawords. It should be set to either **WORDS** or **MWORDS** respectively.

2.3.9 shell*queue_cpu

This variable controls the value used for the default Queue CPU Limit. The required value should be specified using the units defined by the **shell*queue_cpu_units** variable (see Queue Cpu Units). A value of 0 means that the job will be submitted with a unlimited Queue CPU.

2.3.10 shell*queue_cpu_units

This variable controls whether the default Queue CPU Limit is specified in seconds, minutes or hours. It should be set to either **SECONDS**, **MINUTES** or **HOURS** respectively.

2.3.11 shell*queue_space

This variable controls the value used for the default File Space limit. The required value should be specified in Mbytes. A value of 0 means that the job will be submitted with an unlimited File Space Limit.

2.3.12 shell*queue_machine

This variable may be used to specify the name of the queuing machine used by **LSF** batch queues. This option is passed as the **-m** parameter to the LSF **bsub** command.

e.g. **bsub -m** queue_machine

2.3.13 shell*request_cpu/memory_limit

These variables control whether Queue CPU and Memory limits have to be specified when jobs are submitted to NQS style queues. If they do have to be specified then set the relevant variable to **TRUE**, otherwise set them to **FALSE.**

2.3.14 shell*request_space_limit

This variable controls whether a Per-request File Space limit has to be specified when jobs are submitted to NQS style queues. If they do have to be specified then set this variable to **TRUE**, otherwise set it to **FALSE**.

2.3.15 shell*system_cpu

This variable controls the minimum amount of 'system' time, in seconds, that a job submitted to a NQS style queue will require if the queue has been set up using a Queue CPU Limit, (see Request Cpu Limit/ Request Memory Limit). When a job is submitted to such a queue a 'system' CPU time will be calculated as either 2.5% of the Analysis CPU time or the value of this variable. If the difference between the Queue CPU limit and the Analysis CPU limit is smaller than this value the Queue CPU limit will automatically be increased to allow enough system time for the job to terminate normally when the Analysis CPU limit has been reached.

2.3.16 shell*job_format

This variable controls the default file format that will be expected by LS-DYNA. It can be set to either KEYWORD or FIXED.

2.3.17 shell*file_names

This variable controls the names of the output files generated by LS-DYNA. This variable can be set to either ARUP or LSTC.

With LS-DYNA 970 onwards the names of the output files can also be specified using the *KEYWORD_ID option where a filename prefix for all of the output files is specified within the input file.

Output File	**ARUP**	**LSTC**	***KEYWORD_ID**
Binary Complete State Database	'jobname'.ptf	d3plot	'prefix'.d3plot
Time History Database	'jobname'.thf	d3thdt	'prefix'.d3thdt
Extra Time History Database	'jobname'.xtf	xtfile	'prefix'.xtfile
Binary Output File	binout	binout	'prefix'.binout
Restart Dump File	'jobname'.dpf	d3dump	'prefix'.d3dump
Running Restart Dump File	'jobname'.adf	runrsf	'prefix'.runrsf

2.3.18 shell*job_memory

This variable controls the value used for the default Analysis Memory limit, the amount of **CORE** memory that LS-DYNA will use to store data. The required value should be specified using the units defined by the shell*job_memory_units variable (see Job Memory Units). A value of 0 means that the job will be submitted with a the default amount of **CORE** memory built into that LS-DYNA. The default value of 9000000 should be enough for models of up to 60000 elements.

2.3.19 shell*job_memory_units

This variable controls whether the default Analysis Memory limit is specified in words or megawords. It should be set to either **WORDS** or **MWORDS** respectively.

2.3.20 shell*job_cpu

This variable controls the value used for the default Analysis CPU limit. The required value should be specified using the units defined by the **shell*job_cpu_units** variable (see Job Cpu Units). A value of 0 means that the job will be submitted with no Analysis CPU limit.

2.3.21 shell*job_cpu_units

This variable controls whether the default Analysis CPU limit is specified in seconds, minutes or hours. It should be set to either **SECONDS**, **MINUTES** or **HOURS** respectively.

2.3.22 shell*allow_mem_change

This variable controls whether users can change the amount of **CORE** memory used by LS-DYNA. If this variable is set to **FALSE** then users will not be able to modify the Analysis Memory Limit and will be forced to use the default value built into LS-DYNA.

2.3.23 shell*file_size

This variable controls the default binary file size produced by LS-DYNA. The value specified gives the required file size in Mbytes.

2.3.24 shell*write_ctf

By default the **'xshell_93'** is set up so that the default is for LS-DYNA to write out CTF binary files when a jobs is submitted (see the Job Options menu). If this variable is set to **FALSE** then this option will be turned off by default.

2.3.25 shell*write_ztf

By default the **'xshell_93'** is set up so that after an LS-DYNA run Oasys PRIMER is automatically run to generate a .ZTF file for D3PLOT to read (see the Job Options menu). If this variable is set to **FALSE** then this option will be turned off by default.

2.3.26 shell*batch_display

This variable can be sued to specify a UNIX DISPLAY that can be used for batch processing commands.

2.3.27 shell*keep_files

This variable controls whether temporary files created during the submission process and any **CORE** files created if a job terminates abnormally are deleted automatically. If this variable is set to **TRUE** the files will not be deleted.

2.3.28 shell*<*****>_version

By default the **'xshell_93'** is set up to access and run software that uses the default Oasys program names. This option allows the name of any executable to be modified as required and for the **'xshell_93'** to be notified of this name change.

e.g. **shell*d3plot_version**: **d3plot90.exe**

would force the version 93 shell to run the version 9.0 copy of d3plot, (**d3plot90.exe** would have to be in the directory containing the version 93 executables).

On machines where both 32 and 64 bit versions of D3PLOT, T/HIS and PRIMER are available the names for the 64 bit versions can be modified using

shell*this64_version:
shell*d3plot64_version:
shell*primer64_version:

2.3.29 shell*<*****>_default

These options can be used to set the default versions of T/HIS, D3PLOT and PRIMER to either the 32 or 64 bit version.

2.3.30 shell*shell_release

By default the **'xshell_93'** is set up to display 9.3 as the version. This option allows the version number displayed to be changed if a customised installation is set up

2.3.31 shell*max_cpus/shell*max_mpp_cpus

These variable controls the maximum number of CPU's that can be selected for SMP and MPP parallel jobs.

2.3.32 shell*default_cpus/shell*default_mpp_cpus

These variable controls the default number of CPU's for SMP and MPP parallel jobs.

2.3.33 shell*max_node_cpus

This variable should be set to the number of CPUS each node has in a cluster. When a MPP job is submitted to a PBS queue this variable will be used to calculate the required number of nodes that will be requested from the PBS queuing system.

2.3.34 shell*pack_nodes

This variable is used along with shell*max_node_cpus to calculate the number of nodes required when submitting a MPP job to a PBS queuing system. If this is set to TRUE then the minimum number of nodes will be requested.

Note that if commands are specified in the "oasys_queue" file then the following defaults will be overidden.

# Job CPU's	max_node_cpus	pack_nodes	PBS node request	PBSPro 7.0 node request	PBSPro 7.1 node request
2	2	TRUE	nodes=1:ppn=2 ***(1x2)***	nodes=1:ppn=1:ncpus=2	select=1:ncpus=2
2	2	FALSE	nodes=2:ppn=1 ***(2x1)***	nodes=2:ppn=1:ncpus=1	select=2:ncpus=1
8	2	TRUE	nodes=4:ppn=2 ***(4x2)***	nodes=4:ppn=1:ncpus=2	select=4:ncpus=2
8	2	FALSE	nodes=8:ppn=1 ***(8x1)***	nodes=8:ppn=1:ncpus=1	select=8:ncpus=8
7	4	TRUE	nodes=1:ppn=4+1:ppn=3 ***(1x4 + 1x3)***	nodes=1:ppn=1:ncpus=4 +1:ppn=1:ncpus=3	select=1:ncpus=4 +1:ncpus=3
7	4	FALSE	nodes=7:ppn=1 ***(7x1)***	nodes=7:ppn=1:ncpus=1	select=7:ncpus=1

2.3.35 shell*submit_shell (UNIX/LINUX only)

LS-DYNA jobs are submitted on UNIX/LINUX systems using script files. This variable can be set to either **CSHELL** or **BSHELL** to create either CSHELL or BOURNE shell scripts.

2.3.36 shell*unix_type

This variable controls the default binary file size produced by LS-DYNA. The value specified gives the required file size in Mbytes.

2.3.37 shell*manual_reader (UNIX/LINUX only)

This option should be set to point to where a copy of the Adobe Acrobat reader software can be found on the system.

2.3.38 shell*enable_job_monitoring

This option can be used to enable or disable the Oasys Job monitoing option. If this option is set to TRUE then additional commands will automatically be added to job submission scripts to start a monoitoring client for each job. Setting this option to true will also enable the Monitor option in the shell.

2.3.39 shell*temp_folder (Windows only)

This option can be used to specify a folder that the shell can use to create temporary files while submitting LS-DYNA jobs. The directory should be on a local system disk not a networked disk as some Anti-Virus programs block running DOS batch files from Network Drives. The default folder is **C:\TEMP**

2.4 Adding LS-DYNA versions to the Oasys Shell

The list of LS-DYNA versions that can be accessed through the Oasys 9.3 shell is controlled through an ASCII file called "dyna_versions".

Note the format of this file has changed in version 9.3 and an additional column has been inserted before the label field for MPP codes which identifies which MPI library the version has been compiled with.

The format for SMP versions of LS-DYNA is :

<Code Type> <precision> <executable> <label>

The format for MPP versions of LS-DYNA is :

<Code Type> <precision> <executable> <MPP Type> <label>

Where:

<Code Type>	Is either **SMP** (shared memory parallel), **SERIAL** (single threaded non parallel) or **MPP** (distributed memory parallel)
<precision>	Is either **Single** (32 bit floating point) or **Double** (64 bit floating point).
<executable>	Is the full path of the executable. If the full path name of the executables includes any spaces then the path must be enclosed in "s.
<MPP Type>	This is a string that can be used to identify the MPP library a MPP version of LS-DYNA has been compiled with. This column is not defined for **SMP** or **SERIAL** codes,
<label>	Is the label shown in the list of LS-DYNA versions displayed in the submission shell

2.4.1 UNIX / LINUX

Code Type	precision	executable	MPP Type	label
SMP	Single	/dyna/ls971_s_R3_1_xeon64_redhat40.exe		LS971 R3.1 SP SMP
SMP	Double	/dyna/ls971_d_R3_1_xeon64_redhat40.exe		LS971 R3.1 DP SMP
MPP	Single	/dyna/mpp971_s_R3.1_Intel_linux86-64_hpmpi.exe	HP-MPI	LS971 R3.1 SP MPP HP-MPI
MPP	Double	/dyna/mpp971_d_R3.1_Intel_linux86-64_hpmpi.exe	HP-MPI	LS971 R3.1 DP MPP HP-MPI
MPP	Single	/dyna/mpp971_s_R3.1_Intel_linux86-64_lam659.exe	LAM659	LS971 R3.1 SP MPP LAM 6.5.9
MPP	Double	/dyna/mpp971_s_R3.1_Intel_linux86-64_lam659.exe	LAM659	LS971 R3.1 DP MPP LAM 6.5.9

Would display a menu containing 6 versions of LS-DYNA.

2.4.2 WINDOWS

Code Type	precision	executable	MPP Type	label
SMP	Single	"C:\LS-DYNA\ls971_s_R3_1_win32_p.exe"		Win32 SP LS971vR3.1
SMP	Double	"C:\LS-DYNA\ls971_d_R3_1_win32_p.exe"		Win32 DP LS971vR3.1
MPP	Single	"C:\LS-DYNA\mpp971_s_R3.1_win32_mpich125.exe"	MPICH	Win32 SP LS971vR3.1 (MPICH)
MPP	Double	"C:\LS-DYNA\mpp971_d_R3.1_win32_mpich125.exe"	MPICH	Win32 DP LS971vR3.1 (MPICH)
MPP	Single	"C:\LS-DYNA\mpp971_s_R3.1_win64_hpmpi.exe"	HPMPI	Win64 SP LS971vR3.1 (HPMPI)
MPP	Double	"C:\LS-DYNA\mpp971_d_R3.1_win64_hpmpi.exe"	HPMPI	Win64 SP LS971vR3.1 (HPMPI)

If MPP jobs are going to be run across multiple machines and the LS-DYNA executables are located on a network disk then the full UNC path should be specified instaed of the local drive letter.

Code Type	precision	executable	MPP Type	label
MPP	Single	"\\SERVER\LS-DYNA\mpp971_s_R3.1_win64_hpmpi.exe"	HPMPI	Win64 SP LS971vR3.1 (HPMPI)
MPP	Double	"\\SERVER\LS-DYNA\mpp971_d_R3.1_win64_hpmpi.exe"	HPMPI	Win64 SP LS971vR3.1 (HPMPI)

2.5 Customising the LS-DYNA submission script

The Oasys shell generates either a UNIX CShell/Bourne Shell script (**jobname.ctl**) or a DOS batch file (**jobname.bat**) that contains all of the selected LS-DYNA job options. On UNIX systems the choice of either CShell or Bourne Shell is controlled by the shell*submit_shell option in the oa_pref file. In version 9.3 of the shell the contents of these batch files can be modified by editing the "oasys.submit" file located in the installation directory.

The batch file created by the submission shell is split into 4 sections

	Contents	
Queuing Commands	Queue commands for NQS, SGE, LSF and PBS queuing systems. If the job is not submitted to a queue then this section of the batch file will be empty.	Automatically generated by the shell
Environment Variables	This section of the batch file sets up a number of Environment variables. The first group contain information relating to license systems while the second set contain information relating to the selected version of LS-DYNA and the job.	Automatically generated by the shell
LS-DYNA submission	This section of the batch file contains the commands that are actually used to run LS-DYNA. The contents of this section are included from a file in the installations directory.	User configurable
Post Processing Options	Commands for running T/HIS and Reporter automatically after the LS-DYNA job terminates.	Automatically generated by the shell

The following sections include examples taken from the batch file created for a job submitted to a PBS queuing system on a LINUX machine

2.5.1 Queuing Commands

The Oasys shell will automatically add queuing commands to the start of the batch file. The options supported for the different queuing systems are as follows.

Option	**NQS**	**PBS**	**SGE**	**LSF**
log file	-o *"logfile"*	-o *"logfile"*	-o *"logfile"*	-o *"logfile"*
error file	-eo	-e *"errorfile"*	-e *"errorfile"*	-e *"errorfile"*
queue name	-q *"queuename"*	-q *"queuename"*	-l g=*"queuename"*	-q *"queuename"*
start time	-a *"start time"*	-a *"start time"*		-b *"start time"*
Memory Limit	-lM *"limit"*			-M *"limit"*
CPU Limit	-lT *"limit"*		-l h_cpu=*"limit"*	-c *"limit"*
File Limit	-lF *"limit"*			

The log and error file output options can be disabled by setting the preference options shell*queue_output_file and shell*queue_error_file to **FALSE**.

2.5.2 Environment Variables

The following environment variables are automatically set up in the batch file by the Oasys Shell.

Variable	Description
OASYS	Full pathname of the software installation directory
LSTC_FILE	Full pathname of the LSTC license file. If a LSTC license server is being used then this variable will replaced with the LSTC_LICENSE_SERVER, LSTC_NOCLIENT and LSTC_LICENSE variables.
LSTC_MEMORY	Set to auto if the automatic memory option has been selected
LM_LICENSE_FILE	FLEXlm license information for Oasys software
LSDYNA_VERSION	Full pathname of the selected LS-DYNA version
LSDYNA_MPP	Set to TRUE if a MPP version of LS-DYNA had been selected
LSDYNA_MPI_TYPE	MPI version from "dyna_versions" file
LSDYNA_DOUBLE	Set to TRUE if a double precision version of LS-DYNA had been selected
LSDYNA_ONLINE	Set to TRUE if the job has been submitted using the Online option.
LSDYNA_BACKGROUND	Set to TRUE if the job has been submitted using the Background option.
LSDYNA_BATCH	Set to TRUE if the job has been submitted using the Batch option.
LSDYNA_QUEUE	Set to TRUE if the job has been submitted using the Queue option.
LSDYNA_JOB_DIR	Full pathname of the directory containing the LS-DYNA job
LSDYNA_JOB_FILE	Name of the file containing the LS-DYNA job information
LSDYNA_JOB_CPUS	Number of CPU’s selected for parallel jobs
LSDYNA_USER_ID	Username
LSDYNA_LOCAL_HOST	TRUE if submitting MPP jobs to the local machine
LSDYNA_NODE_FILE	Set to TRUE if submitting MPP jobs using a file containing the list of nodes to use
NODE_FILE	Filename containing the list of nodes to use.
LSDYNA_NODE_LIST	Set to TRUE if submitting MPP jobs using a string containing the list of nodes to use
NODE_LIST	String containing the list of nodes to use.
LSDYNA_RESTART_FILE	Filename of LS-DYNA restart dump file if the analysis is a restart.
LSDYNA_RESTART_INPUT_FILE	Filename of LS-DYNA restart input file if the analysis is a restart and a input file has been selected.

```
#
# License file variables
#
setenv OASYS           /data/dyna93/linux_executables
setenv LSTC_FILE       /prg/LSTC_FILE
setenv LSTC_MEMORY     auto
setenv LM_LICENSE_FILE @atuhp022:@atghps03
#
# Job variables
#
setenv LSDYNA_VERSION
/data/dyna93/linux_executables/ls970_s_5434_ia64_sgi_p.exe
setenv LSDYNA_MPP           FALSE
setenv LSDYNA_DOUBLE        FALSE
setenv LSDYNA_ONLINE        TRUE
setenv LSDYNA_BACKGROUND    FALSE
setenv LSDYNA_BATCH         FALSE
setenv LSDYNA_QUEUE         FALSE
setenv LSDYNA_JOB_DIR       /local/test
setenv LSDYNA_JOB_FILE      shell_test.temp
setenv LSDYNA_JOB_CPUS      2
setenv LSDYNA_USER_ID       rogerh
setenv LSDYNA_LOCAL_HOST    FALSE
setenv LSDYNA_NODE_FILE     TRUE
setenv NODE_FILE            /local/test/nodelist
setenv LSDYNA_NODE_LIST     FALSE
#
```

2.5.3 LS-DYNA submission

The commands to run LS-DYNA are included from a user configurable file called "oasys.submit" located in the software installation directory.

As the file is included after the Environment Variable section of the batch file all of the variables that are set up can be used within the include file. This means that a single include file "oasys.submit" can be configured if required which contains separate sections for SMP / MPP jobs.

2.5.3.1 Example of a UNIX/LINUX "oasys.submit" file

The following example shows the default "oasys.submit" file that is included with the version 9.3 software on UNIX and LINUX platforms. The default script is setup to submit jobs on a LINUX machine using the PBS queueing system but it should be easy to reconfigure to other machines and queueing systems.

As MPP jobs can use a number of different MPI libraries on LINUX systems this script shows how to submit jobs using HP-MPI, LAM 6.5.9, LAM 7.0.3 and MPICH. The default script is setup assuming that the different MPI libaries have been installed in the following directories:

MPI	**Directory**
HP-MPI	**/opt/hpmpi**
LAM 6.5.9	**/usr/local/lam_6-5-9**
LAM 7.0.3	**/usr/local/lam_7-0-3**
MPICH 1.2.6	**/usr/local/mpich_1-2-6**

```
#
# The following Environment Variables are available for this script
#
# $LSDYNA_VERSION : full pathname of selected LS-DYNA executable
# $LSDYNA_MPP : TRUE if MPP version selected
# $LSDYNA_MPI_TYPE : MPI version
# $LSDYNA_DOUBLE : TRUE if double precision version selected
# $LSDYNA_ONLINE : TRUE if the job has been submitted ONLINE
# $LSDYNA_BACKGROUND : TRUE if the job has been submitted to BACKGROUND
# $LSDYNA_BATCH : TRUE if the job has been submitted using BATCH
# $LSDYNA_QUEUE : TRUE if the job has been submitted to a QUEUE
# $LSDYNA_JOB_DIR : full path of LS-DYNA job_directory
# $LSDYNA_JOB_FILE : filename containing LS-DYNA job options
# $LSDYNA_JOB_CPUS : number of CPU's selected
# $LSDYNA_USER_ID : username
# $LSDYNA_LOCAL_HOST : TRUE if submitting MPP jobs to the local machine
# $LSDYNA_NODE_FILE : TRUE if submitting MPP jobs using a Node File
# $NODE_FILE : filename containing node list for MPP jobs
# $LSDYNA_LOCAL_HOST : TRUE if submitting MPP jobs using a Node List
# $NODE_LIST : string containing node list for MPP jobs
#
#
#
# ============================================================================
# MACHINE SPECIFIC VARIABLES - uncomment as required
#
#
# IBM AIX
# -------
# setenv YIELDLOOPTIME 10000000
# setenv SPINLOOPTIME 1000000
# setenv AIXTHREAD_SCOPE S
# setenv MP_PROCS $LSDYNA_JOB_CPUS
# setenv MP_LABELIO no
# setenv MP_EUILIB us
# setenv MP_EUIDEVICE css0
#
#
# SGI IRIX
# --------
# setenv MPC_GANG off
# setenv OMP_DYNAMIC FALSE
# setenv OMP_SET_NUMTHREADS $LSDYNA_JOB_CPUS
# setenv _DSM_PPM 2
# setenv _DSM_PLACEMENT ROUND_ROBIN
# setenv TRAP_FPE "OVERFL=ABORT; DIVZERO=ABORT; INVALID=ABORT; INT_OVERFL=ABORT"
#
# ============================================================================
#
# ============================================================================
# MACHINE SPECIFIC MPP submission commands
#
# # HP ALPHA
# --------
# dmpirun -np $LSDYNA_JOB_CPUS $LSDYNA_VERSION
#
#
# HP PA8000 and Itanium2 (HP-MPI)
# -----------------------
# mpirun -np $LSDYNA_JOB_CPUS $LSDYNA_VERSION < $LSDYNA_JOB_FILE (single node)
#
# mpirun -f appfile (multiple nodes)
# where appfile contains
#
# -h hostname_1st -np #1 -e MPI_WORKDIR=<workdir> $LSDYNA_VERSION <
$LSDYNA_JOB_FILE
# -h hostname_2nd -np #2 -e MPI_WORKDIR=<workdir> $LSDYNA_VERSION
# -h hostname_3rd -np #3 -e MPI_WORKDIR=<workdir> $LSDYNA_VERSION
# -h hostname_4th -np #4 -e MPI_WORKDIR=<workdir> $LSDYNA_VERSION
#
```

```
#
# IBM Power
# ---------
# setenv MP_PROCS $LSDYNA_JOB_CPUS
# setenv MP_LABELIO no
# setenv MP_EUILIB us
# setenv MP_EUIDEVICE css0
# poe $LSDYNA_VERSION -procs $LSDYNA_JOB_CPUS -hfile $LSDYNA_NODE_FILE
#
#
# SGI IRIX
# --------
# mpirun -np $LSDYNA_JOB_CPUS $LSDYNA_VERSION
#
#
# SUN SPARC
# ---------
# mpirun -np $LSDYNA_JOB_CPUS $LSDYNA_VERSION
#
#
# ================================================================================
#
#
# ********************************************************************************
#
# THE REST OF THIS SCRIPT HAS BEEN CONFIGURED FOR SUBMITING LS-DYNA JOBS TO A
# LINUX SYSTEM USING THE PBS QUEUEING SYSTEM. YOU WILL HAVE TO MODIFY THE
# FOLLOWING IF YOU ARE USING A DIFFERENT QUEUEING STSTEM OR MACHINE TYPE.
#
# ********************************************************************************
#
if ( $LSDYNA_MPP != "TRUE" ) then
#
# ======================
# SMP LS-DYNA submission
# ======================
#
 $LSDYNA_VERSION < $LSDYNA_JOB_DIR/$LSDYNA_JOB_FILE
#
else
#
# ======================
# MPP LS-DYNA submission
# ======================
#
# HP-MPI
#
 if ($LSDYNA_MPI_TYPE == "HP-MPI") then
#
 setenv HPMPI_DIR /opt/hpmpi/bin
if (-e $PBS_NODEFILE) then
rm -rf $LSDYNA_JOB_DIR/appfile >& /dev/null
if (-f $PBS_NODEFILE) then
foreach roger ( ‘cat $PBS_NODEFILE‘ )
echo "-h $roger -np 1 $LSDYNA_VERSION" >> $LSDYNA_JOB_DIR/appfile
end
endif
endif
$HPMPI_DIR/mpirun -prot -e MPI_WORKDIR=$LSDYNA_JOB_DIR -f appfile
rm -rf $LSDYNA_JOB_DIR/appfile >& /dev/null
#
# LAM 6.5.9 - using ssh
#
 else if ($LSDYNA_MPI_TYPE == "LAM659") then
#
 setenv LAM_DIR /usr/local/lam_6-5-9/bin
setenv LAMRSH "ssh -x"
$LAM_DIR/recon -v $PBS_NODEFILE
$LAM_DIR/lamboot -v $PBS_NODEFILE
$LAM_DIR/mpirun C $LSDYNA_VERSION < $LSDYNA_JOB_DIR/$LSDYNA_JOB_FILE
$LAM_DIR/lamclean
$LAM_DIR/wipe $PBS_NODEFILE
```

```
#
# LAM 7.0.3 - using ssh
#
 else if ($LSDYNA_MPI_TYPE == "LAM703") then
#
 setenv LAM_DIR /usr/local/lam_7-0-3/bin
setenv LAMRSH "ssh -x"
$LAM_DIR/recon -v $PBS_NODEFILE
$LAM_DIR/lamboot -v -ssi boot rsh -ssi boot_rsh_agent "ssh -x" $PBS_NODEFILE
$LAM_DIR/mpirun C -x LD_LIBRARY_PATH $LSDYNA_VERSION < $LSDYNA_JOB_DIR/
$LSDYNA_JOB_FILE
$LAM_DIR/bin/lamclean
$LAM_DIR/wipe $PBS_NODEFILE
#
# MPICH 1.2.6 - using ssh
#
 else if ($LSDYNA_MPI_TYPE == "MPICH") then
#
 setenv MPICH_DIR /usr/local/mpich_1-2-6/bin
if (-e $PBS_NODEFILE) then
cat $PBS_NODEFILE
set numproc = 'cat $PBS_NODEFILE | wc -l '
endif
setenv P4_RSHCOMMAND "ssh -x"
$MPICH_DIR/mpirun -np $numproc $LSDYNA_VERSION <
$LSDYNA_JOB_DIR/$LSDYNA_JOB_FILE
#
 endif
#
endif
#
```

2.5.3.2 Example of a Windows "oasys.submit" file

The following example shows the default "oasys.submit" file that is included with the version 9.3 software on PC platforms.

As MPP jobs can use either the HP-MPI or MPICH MPI libraries this script shows how to submit jobs using both of them. The default script is setup assuming that the different MPI libaries have been installed in the following directories.

MPI	Directory
HP-MPI	C:\Program Files\Hewlett-Packard\HP-MPI
MPICH 1.2.6	C:\Program Files\MPICH\

This script also shows

1. How to submit MPP jobs to either the local machine or to multiple machines using either a file containing a list of hostnames or a string containing the hostnames.
2. How to pass environment variables for license options to the remote hosts via the mpirun command.

```
REM The following Environment Variables are available for this script
REM
REM LSDYNA_VERSION : full pathname of selected LS-DYNA executable
REM LSDYNA_MPP : TRUE if MPP version selected
REM LSDYNA_MPI_TYPE : MPI version
REM LSDYNA_DOUBLE : TRUE if double precision version selected
REM LSDYNA_ONLINE : TRUE if the job has been submitted ONLINE
REM LSDYNA_BACKGROUND : TRUE if the job has been submitted to BACKGROUND
REM LSDYNA_BATCH : TRUE if the job has been submitted using BATCH
REM LSDYNA_QUEUE : TRUE if the job has been submitted to a QUEUE
REM LSDYNA_JOB_DIR : full path of LS-DYNA job_directory
REM LSDYNA_JOB_FILE : filename containing LS-DYNA job options
REM LSDYNA_JOB_CPUS : numbert of CPU's selected
REM LSDYNA_USER_ID : username
```

```
REM LSDYNA_LOCAL_HOST : TRUE if submitting MPP jobs to the local machine
REM LSDYNA_NODE_FILE : TRUE if submitting MPP jobs using a Node File
REM NODE_FILE : filename containing node list for MPP jobs
REM LSDYNA_LOCAL_HOST : TRUE if submitting MPP jobs using a Node List
REM NODE_LIST : string containing node list for MPP jobs
REM
REM
REM SMP LS-DYNA submission
REM ======================
REM
IF %LSDYNA_MPP% == TRUE GOTO :MPP
%LSDYNA_VERSION%
GOTO :DONE
REM
REM MPP LS-DYNA submission
REM ======================
REM
:MPP
REM
REM HP-MPI using local machine
REM
set HPMPI_MPIRUN="C:\Program Files\Hewlett-Packard\HP-MPI\bin\mpirun"
IF %LSDYNA_MPI_TYPE% == HPMPI (
set MPI_WORKDIR=%LSDYNA_JOB_DIR%
IF %LSDYNA_LOCAL_HOST% == TRUE ( %HPMPI_MPIRUN% -prot -pass -np
%LSDYNA_JOB_CPUS% %LSDYNA_VERSION%
GOTO :DONE
)
IF %LSDYNA_NODE_FILE% == TRUE (
%HPMPI_MPIRUN% -prot -pass -np %LSDYNA_JOB_CPUS% -hostfile %NODE_FILE% -e
LSTC_LICENSE_SERVER=%LSTC_LICENSE_SERVER%<line break> -e
LSTC_LICENSE=%LSTC_LICENSE% %LSLSDYNA_VERSION%
GOTO :DONE
)
IF %LSDYNA_NODE_LIST% == TRUE (
%HPMPI_MPIRUN% -prot -pass -np %LSDYNA_JOB_CPUS% -hostlist %NODE_LIST% -e
LSTC_LICENSE_SERVER=%LSTC_LICENSE_SERVER%<line break> -e
LSTC_LICENSE=%LSTC_LICENSE% %LSLSDYNA_VERSION%
GOTO :DONE
)
)
REM
REM MPICH
REM
set MPICH_MPIRUN="C:\Program Files\MPICH\mpd\bin\mpirun"
IF %LSDYNA_MPI_TYPE% == MPICH (
IF %LSDYNA_LOCAL_HOST% == TRUE (
%MPICH_MPIRUN% -np %LSDYNA_JOB_CPUS% -localonly %LSDYNA_VERSION%
GOTO :DONE
)
IF %LSDYNA_NODE_FILE% == TRUE (
%MPICH_MPIRUN% -np %LSDYNA_JOB_CPUS% -logon -machinefile %NODE_FILE% -env
"LSTC_LICENSE_SERVER=%LSTC_LICENSE_SERVER%|<line break>
LSTC_LICENSE=%LSTC_LICENSE%" %LSDYNA_VERSION%
GOTO :DONE
)
IF %LSDYNA_NODE_LIST% == TRUE (
%MPICH_MPIRUN% -logon -hosts %NODE_LIST% -env
"LSTC_LICENSE_SERVER=%LSTC_LICENSE_SERVER%|<line break>
LSTC_LICENSE=%LSTC_LICENSE%" %LSDYNA_VERSION%
GOTO :DONE
)
)
REM
REM
:DONE
```

2.5.4 Post Processing options

When a LS-DYNA job is submitted using the Oasys shell automatic post processing options for Oasys Reporter and Oasys T/HIS can be selected. This section of the batch file contains any commands required to carry out the selected post processing options.

```
#
# PRIMER 'ztf' file creation
#
/data/dyna93/linux_executables/primer93.exe -d=batch
-ztf=/local/test/shell_test.key > \
shell_test.ztf_log
#
# T/HIS batch processing
#
setenv MENU_AUTO_CONFIRM true
/data/dyna93/linux_executables/this90c.exe -d=x -tcf=shell_test.tcf -maximise
shell_test.thf
```

2.6 Creating an "oasys_queue" file

This file lists alternative batch queues and queue directives. It only needs to be created for systems on which jobs can be submitted to a NQS style queue.

The file is in xml format, with tags to define data blocks. It contains three distinct blocks, defining queue directives which are written for: specific queues; specific queue and cpu combinations and; all queues. There can be no blank lines in data blocks.

The first block defines the queue names, their cpu limit and any queue directives specific to the queue. This block is required.

```
<queue_names>
        <name1>
            cpu_limit="300"
            command="#PBS -m abe"
        </name1>
        <name2>
            cpu_limit="pipe"
        <name2>
        <name3>
            cpu_limit="none"
        </name3>
</queue_names>
```

Where:

<queue_names> and </queue_names>	are tags to indicate the start and end of the block of data
<name1> and </name1>	are the names of the queues and tags to indicate the start and end of the data for that queue (up to 20 can be defined)
cpu_limit	is the cpu limit for the queue (in seconds) or "pipe" or "none"
command	is an optional queue directive specific for the queue (up to 20 for each queue can be defined)

The second block defines what queue options will be available to the user (see Section 1.2.4.7), depending on the queue and number of cpus chosen. It is intended to be used to define queue directives which define the number of nodes and cpus to use. This block is optional.

```
<queue_commands>
        <name1>
            <1>
                display_string="1 CPU x 1 Node"
                command="#PBS -l nodes=1:ppn=1:name1
            </1>
            <2>
                display_string="2 CPU x 1 Node"
                command="#PBS -l nodes=1:ppn=2:name1
            </2>
            <2>
                display_string="1 CPU x 2 Node"
                command="#PBS -l nodes=2:ppn=1:name1
            </2>
        </name1>
        <name2>
            <4>
                mpp_only
                display_string="2 CPU x 2 Node"
                command="#PBS -l nodes=2:ppn=2:name2
            </4>
        </name2>
        <name3>
            <1>
                display_string="1 CPU x 1 Node"
                command="#PBS -l nodes=1:ppn=1:name3
            </1>
        </name3>
</queue_commands>
```

Where:

<queue_commands> and </queue_commands>	are tags to indicate the start and end of the block of data
<name1> and </name1>	are the names of the queues and tags to indicate the start and end of the data for that queue (note that they must be the same as the names defined in the first block)
<1> and </1>	are the number of cpus and tags to indicate the start and end of the data for that number of cpus
mpp_only	if this is included then the option will only be available if an MPP version of Dyna is selected
display_string	is the text that is displayed to the user in the popup menu on the shell (see Section 1.2.4.7)
command	is a queue directive specific to the queue and number of cpus (up to 20 can be defined for the queue and cpu combination)

Up to 100 queue and cpu combinations can be defined. If this block is not included in the file then the queue options popup will be greyed out and the default directives produced by the shell will be used.

The third block defines queue directives that apply to all queues. This block is optional.

```
<all_queue_commands>
                command="#PBS -m abe"
</all_queue_commands>
```

Where:

<all_queue_commands> and </all_queue_commands>	are tags to indicate the start and end of the block of data
command	is a queue directive (up to 20 can be defined)

Example :

```
$
<queue_names>
                        <dyna>
                                                cpu_limit="none"
                        </dyna>
                        <fast>
                                                cpu_limit="3600"
                        </fast>
</queue_names>
$
<queue_commands>
                        <dyna>
                                                <1>
                                                     display_string="1 CPU x 1 Node"
                                                     command="#PBS -l
                                                     nodes=1:ppn=1:dyna"
                                                </1>
                                                <2>
                                                     display_string="2 CPU x 1 Node"
                                                     command="#PBS -l
                                                     nodes=1:ppn=2:dyna"
                                                </2>
                                                <2>
                                                     mpp_only
                                                     display_string="1 CPU x 2
                                                     Nodes"
                                                     command="#PBS -l
                                                     nodes=1:ppn=2:dyna"
                                                </2>
                                                <4>
                                                     mpp_only
                                                     display_string="2 CPU x 2
                                                     Nodes"
                                                     command="#PBS -l
                                                     nodes=2:ppn=2:dyna"
                                                </4>
                                                <4>
                                                     display_string="4 CPU x 1 Node"
                                                     command="#PBS -l
                                                     nodes=1:ppn=4:dyna"
                                                </4>
                                                <4>
```

```
                                        mpp_only
                                        display_string="1 CPU x 4
                                        Nodes"
                                        command="#PBS -l
                                        nodes=4:ppn=1:dyna"
                                    </4>
                        </dyna>
                        <fast>
                                    <2>
                                        display_string="2 CPU x 1 Node"
                                        command="#PBS -l
                                        nodes=1:ppn=2:dyna"
                                    </2>
                                    <2>
                                        mpp_only
                                        display_string="1 CPU x 2
                                        Nodes"
                                        command="#PBS -l
                                        nodes=1:ppn=2:dyna"
                                    </2>
                        </fast>
</queue_commands>
$
<all_queue_commands>
                        command="#PBS -m abe"
</all_queue_commands>
$
```

2.7 Adding items to the "Utilities" menu

The "Utilities" menu within the Xshell may be customised to contain upto 20 items. The contents of this menu is controlled by a file called "oasys_utilities" that is located in the directory containing the version 93 executables. The format of this file is:

<Menu Name> **<Program>** **<Xterm>**

Where:

Menu Name: Name to be given to the program in the menu.
Action: The name of the program to execute.
Xterm: Does the program require an xterm window define as **YES** or **NO**

3 Additional Windows NT/2000/XP Setup

3.1 Setting File Associations

Under windows on PC it is possible to set up file associations so that double clicking on files automatically loades the file into the assocuiated program. As part of the PC installation the following file associations will be set up automatically

File Extension	Program
.ptf	D3PLOT 93
.thf	T/HIS 93
.xtf	T/HIS 93
.bdf	T/HIS 93
.key	PRIMER 93

Sections 3.1.1 to 3.1.3 describe in detail how these file associations can be manually set up if required.

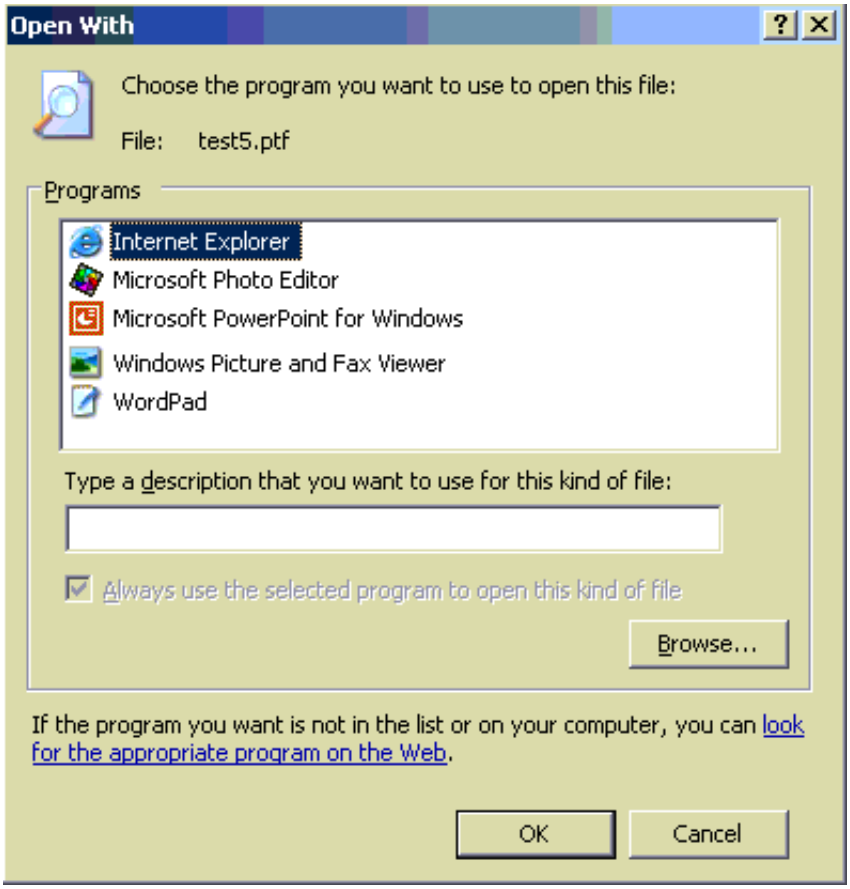
3.1.1 To make .ptf files open in D3PLOT by double-clicking on them

3.1.1.1 When .ptf files do not currently have an application associated with them.

If no application is currently associated with .ptf files, a "double-click" won't work, and some non-specific, usually "windows", icon will be displayed with the file.

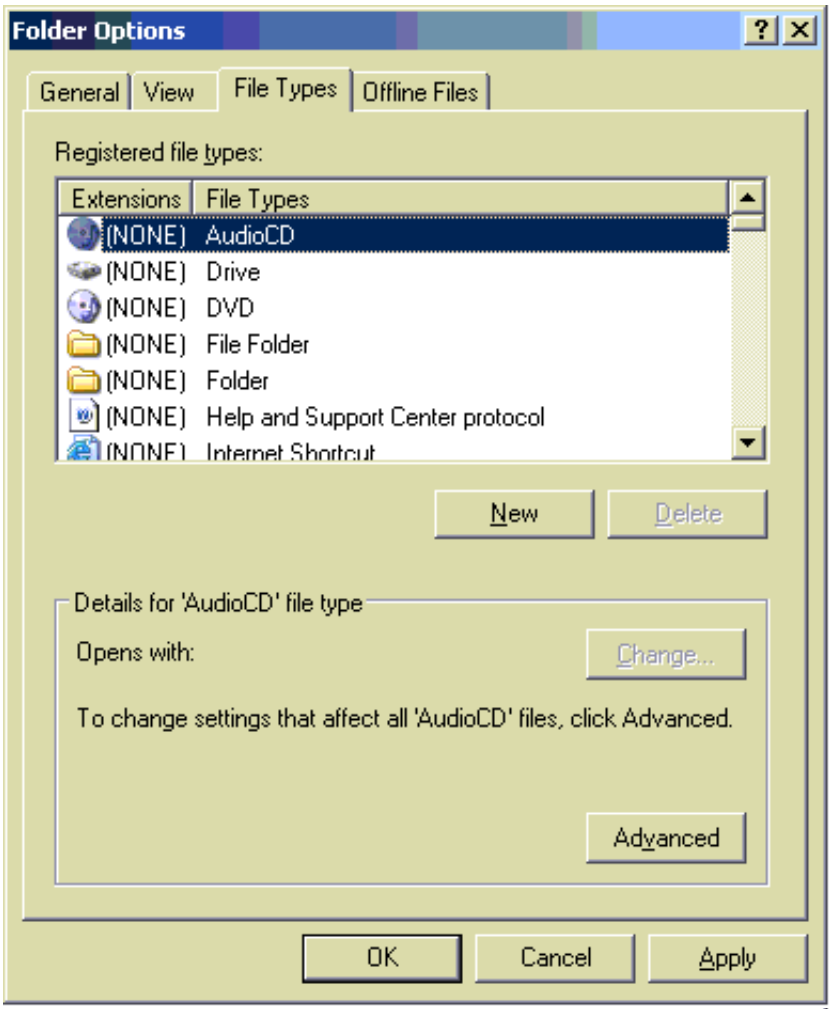
Right click on any **.ptf** file, and select **Open with...** (Windows nt and 2000) or **properties** then press the Change tab next to Opens with: (Windows xp) from the popup menu.

1. This will bring up the **"Open with"** panel.
2. Type in a suitable description of the **.ptf** files. For example: "LS-DYNA complete state file"
3. Ensure the **Always use...** box is ticked
4. Use the directory browsing window to find the correct D3PLOT executable. You are looking for file **d3plot93.exe**. (If you can't remember where it is installed use **Start -> Find -> Files or Folders** to locate it.)
5. Click on **OK** to close the "Open With" window. This should start D3PLOT, but at present it won't "know" about device type or filename: so select **STOP** to exit it.

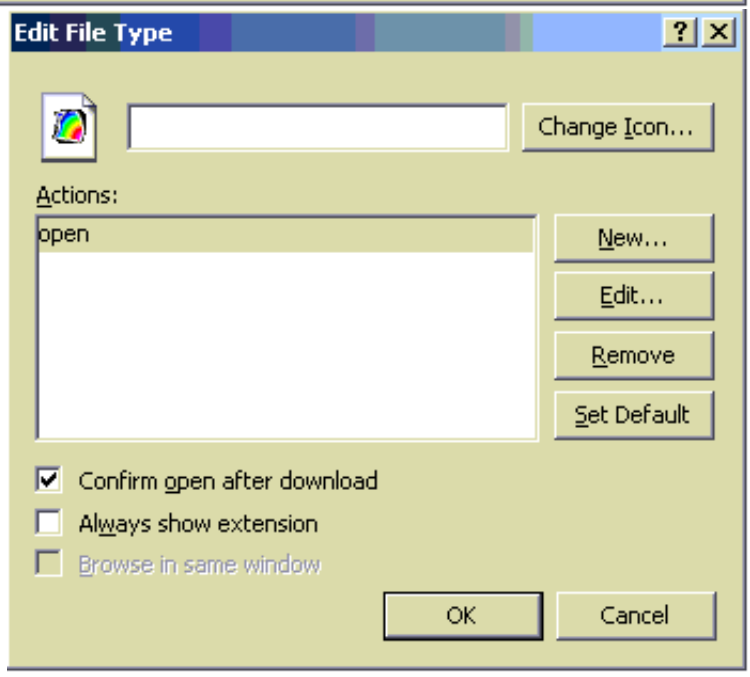

Open With
Choose the program you want to use to open this file:
File: test5.ptf
Programs
Internet Explorer
Microsoft Photo Editor
Microsoft PowerPoint for Windows
Windows Picture and Fax Viewer
WordPad
Type a description that you want to use for this kind of file:
Always use the selected program to open this kind of file
Browse...
If the program you want is not in the list or on your computer, you can look for the appropriate program on the Web.
OK
Cancel

If D3PLOT doesn't start check through what you've done, and ask Oasys for help if you can't resolve the problem.

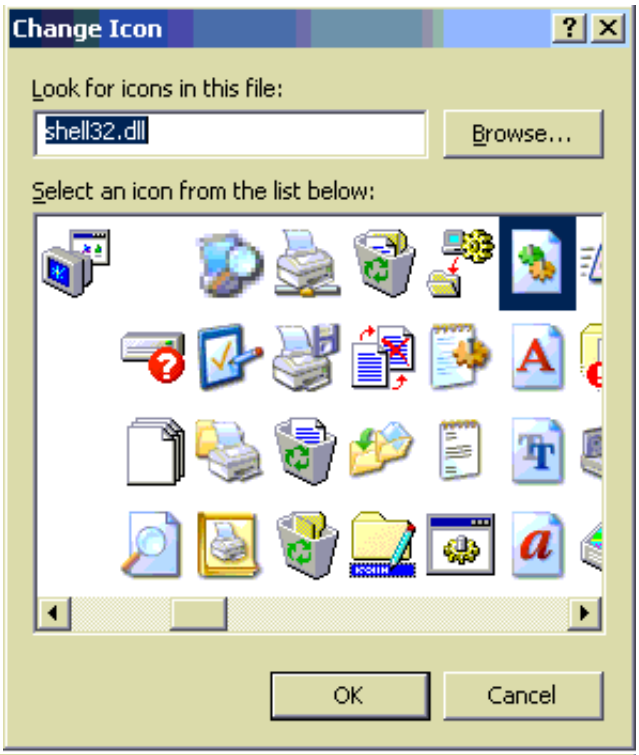
1. In any folder window click on **View** (Windows nt or 2000) or **tools** (Windows xp), then select **Folder Options...** from the menu.
2. Select the **File Types** tab at the top.
3. Scroll down the list of Registered file types until you get to the name you entered for **.ptf** files e.g. "LS-DYNA complete state file". Highlight this and select **Advanced...**



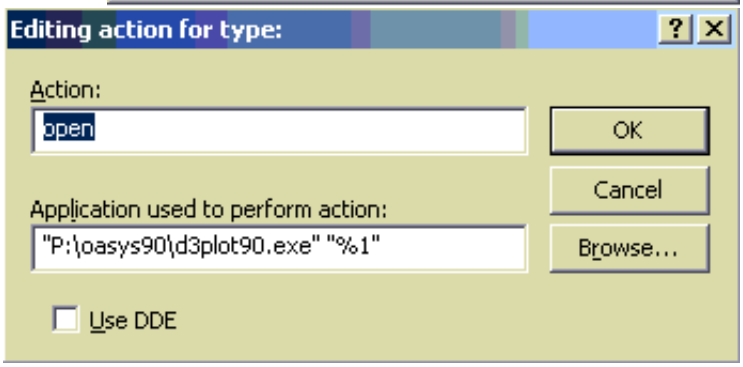
1. In the Edit File Type panel click on **Change Icon...**



1. Use **BROWSE...** in the Change Icon panel to find file **d3plot93.exe**.



1. Then, in the Edit File Type panel, click on **Edit...** to obtain the Editing action panel:



The Action: entry should be set to "open" (greyed out).

You now need to edit the contents of the **Application used...** box:
1. Edit the existing string and add "%1" at its end.
2. Click on **OK** in the Editing action window to close and save it.
3. Click on **Close** in the edit File Type window to close and save it.
4. Click on Close in the Folder Options window to close and save it.

You should now find that:
1. All **.ptf** files on your system show the D3PLOT icon.
2. Double-clicking on any such file starts D3PLOT with the appropriate graphics driver, and opens that file.

It is not possible to set up the filename "d3plot" for double-clicking in this way since Windows requires filename extensions when assigning applications to files.)

3.1.1.2 If .ptf files do currently have an application associated with them.

1. In any folder window click on **View** (Windows nt and 2000) or **tools** (Windows XP, then select **Folder Options...** from the menu.
2. Select the **File Types** tab at the top.
3. Scroll down until you find the file type currently associated with **.ptf** files.
4. Highlight it and click on **Edit...**

The procedure is then the same as the above, except that you are replacing...
1. Icon (click on **Change Icon**)
2. Application (click on **Edit...**)

...instead of defining new values.

If you are unsure it may be easier to **Remove** the current registered file type, then follow the instructions in section 3.1.1.1 above.

3.1.2 To make .thf, .xtf, .cur and .bdf files open in T/HIS by double-clicking on them

The procedure is exactly the same as for D3PLOT, and must be carried out for each of the file types that you wish to process by double-clicking:

.thf: LS-DYNA Time History file
.xtf: LS-DYNA Extra Time History file
.cur: Oasys T/HIS Curve file
.bdf: Oasys T/HIS Bulk Data file

The only differences are:
1. File name description, in the **Open With** window, should be appropriate.
2. The application to use should be **this93.exe**.
3. The icon to use should be **this93.exe**

Note that:
1. File types **.thf** and **.xtf** are opened in this way, but no contents are read in.
2. File types **.cur** and **.bdf** are opened and their complete contents read in.

LS-DYNA default filenames **"d3thdt"** and **"xtfile"** cannot be set up for double-click access in this way because Windows requires filenames to have extensions when assigning applications to them.

3.1.3 To make .key files open in PRIMER by double-clicking on them

The procedure is exactly the same as for PRIMER, and must be carried out for each of the file types that you wish to process by double-clicking:

.key: LS-DYNA Keyword Input File

The only differences are:
1. File name description, in the **Open With** window, should be appropriate.
2. The application to use should be **primer93.exe**.
3. The icon to use should be **primer93.exe**

4 Preferences

The Oasys Preferences editor provides a graphical interface for viewing, checking and editing your Oasys user preferences stored in your oa_pref file

4.1 The oa_pref file

This file contains code-specific preferences that can be used to modify the behaviour of Oasys products. It is optional and, where entries (or the whole file) are omitted programs will revert to there default settings.

4.1.1 "oa_pref" naming convention and locations

The file is called "oa_pref", optionally with a leading "." (.oa_pref) on Unix systems.

It is looked for in the following places in the order given:
- The site-wide "Oasys" directory (**$OASYS**)
- The user's home directory: **$HOME** (Unix/Linux) or **$USERPROFILE** (Windows)
- The current working directory

The first encountered file will be used, so this file can be customised for a particular job or user at will.
Files do not have to exist in any of these locations, and if none exists the programme defaults will be used.

On Unix and Linux:

$HOME on Unix and Linux is usually the home directory specified for each user in the system password file. The shell command "**printenv**" (or on some systems "**setenv**") will show the value of this variable if set. If not set then it is defined as the "**~**" directory for the user. The command "**cd; pwd**" will show this.

On Windows:

$USERPROFILE on Windows is usually **C:\Documents and Settings\<*user id*>**
Issuing the "**set**" command from an MS-DOS prompt will show the value of this and other variables.

Generally speaking you should put
- Organisation-wide options in the version in $OASYS,
- User-specific options in $HOME / $USERPROFILE
- Project-specific options in the current working directory.

An example of the file is shown below to illustrate the content of the file

```
# Preferences file for OASYS software.
#
# Preferences for SHELL
shell*queue_cpu: 0
#
# Preferences for THIS
this*laser_paper_size: A4
#
# Preferences for D3PLOT
d3plot*overlay_colour: grey
#
# Preferences for PRIMER
primer*overlay_mode off
```

The file contains preferences for the SHELL (lines commencing shell*), THIS (lines commencing this*), D3PLOT (lines commencing d3plot*), PRIMER (lines commencing primer*)and REPORTER (lines commencing reporter*). All lines take the format <preference name> <preference value>.

The general copy of the Oasys preference file should be present in the $OASYS directory. This should contain the preferences most suitable for all software users on the system.

An individual's specific preferences file can be stored in the individual's home area. This can be used to personally customise the software to the individual's needs.

Whenever one of the Oasys programs whose preferences can be stored in the oa_pref file is fired up, the program will take preferences first from the general preference file in the $OASYS directory and then from the file in the user's home area.

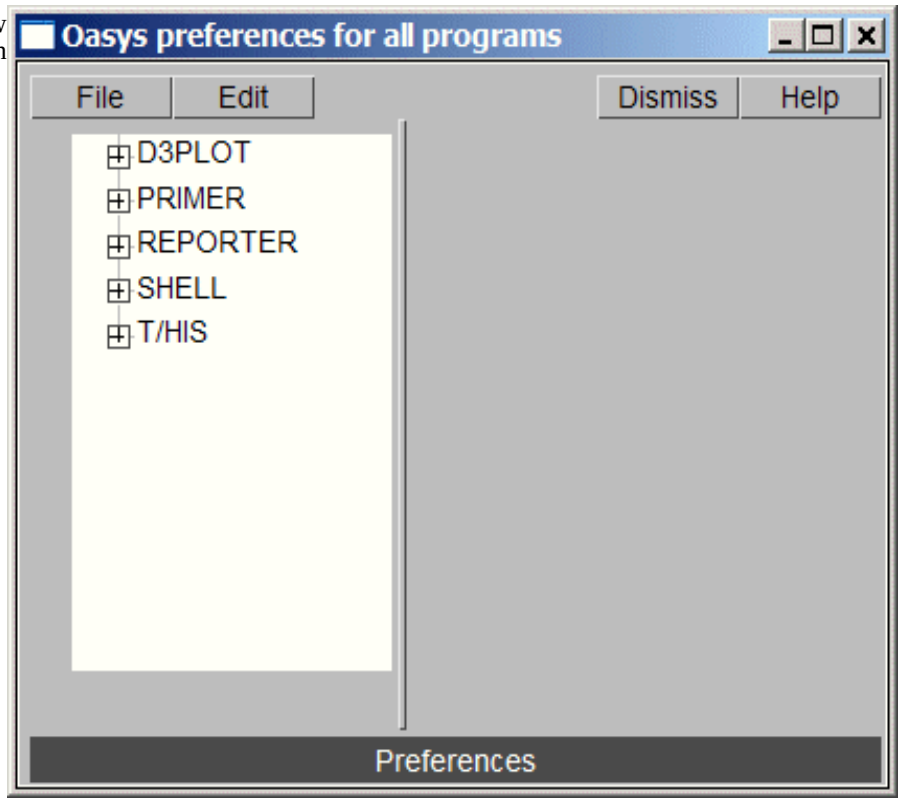
Preferences defined in the general oa_pref file can be modified in the user's personal file but they can't be removed by it

4.2 The Oasys preferences editor

The editor can be access from within the Oasys Shell or from within D3PLOT, T/HIS, PRIMER and REPORTER.

4.2.1 The Oasys preferences editor layout

The preferences editor window is divided into two frames with a menu bar across the top.

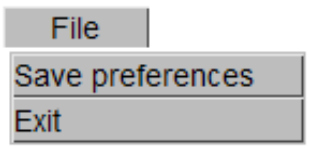


4.2.1.1 Menu Bar

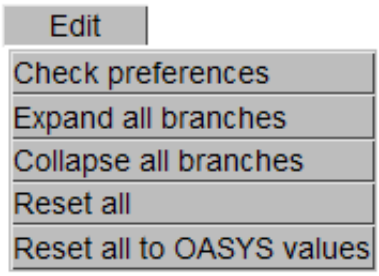
File options:

Save preferences: Save current preference settings. This will save the personal oa_pref file in the user's home directory. Only those preferences which differ from the preferences saved in the general oa_pref file will be saved.

Exit: Exit the Oasys preferences editor without saving.



Edit options:



Check Preferences: Checks the current preferences for any errors. These errors will be listed in a seperate window detailing the preferences with the errors and the nature of those errors
Expand all branches: Expands the categories in the Left hand frame.
Collapse all branches: Collapses the categories in the Left hand frame
Reset all: Resets all values.
Reset all to OASYS values: Resets all values to the defaults stored in the main $OASYS preference file

4.2.1.2 The Oasys preferences editor Left hand frame

The left hand frame will contain the names of all preferences available to set. Preferences will be listed under the headings: PRIMER, D3PLOT, T/HIS, REPORTER and SHELL according to which program they are applicable to.

These categories can be expanded to reveal their respective preferences/contracted to hide their preferences by clicking on the box to the left of the respective category, alternatively, use the edit drop down menu and select Expand all branches or collapse all branches.

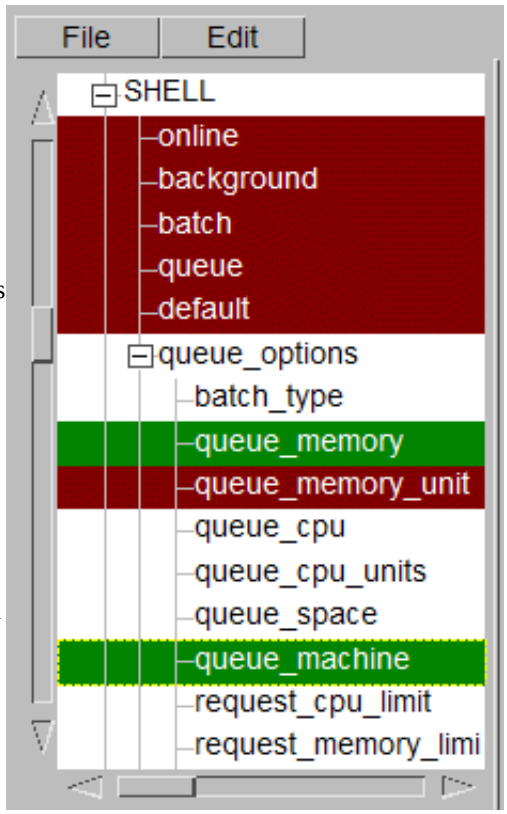
Preferences highlighted in green indicate preferences read from the user's personal oa_pref file

Preferences highlighted in red indicate preferences read from the general oa_pref file in the $OASYS directory.

Preferences which aren't highlighted indicate preferences that haven't been set.

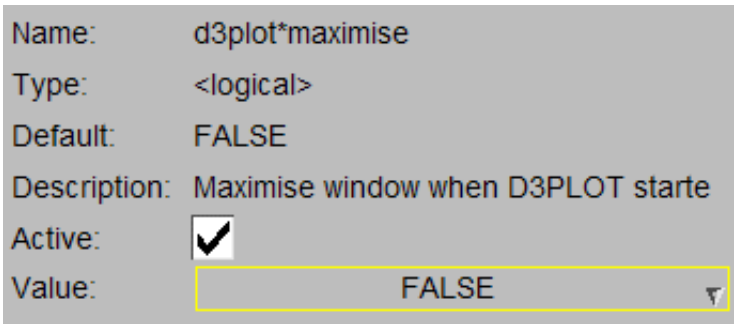
Preferences in **bold** type indicate preferences which haven't been assigned the default value.

A list of all the preferences available and their default value can be found in any oa_pref file written by the preferences editor.



4.2.1.3 The Oasys preferences editor Right hand frame

The right hand frame will contain information about the currently selected preference and provides the opportunity to edit this preference.



Name: States the name of the currently selected preference.
Type: Specifies the type of variable applicable to this preference.
Default: States the default value of the preference. **Description**: Provides a brief description of the function performed by this preference.
Active tab: Highlighted in Green when the preference has been assigned a value. Press this tab to activate/ deactivate the currently selected preference. If the currently selected preference was defined in the general oa_pref file, deselecting this will bring up an error message as it is not possible to deselect preferences stored in the general oa_pref file.
Value: States the currently selected value for the preference. Clicking on the arrow to the left of this box brings up a drop-down menu which lists the possible values this preference can take and allows the user to select one of these values.

5 The Oasys Job Monitor

5.1 Introduction

The Oasys Job Monitoring system consists of 3 items; a central database server (oamonserv93.exe) that stores job information, a job client (oamonc93.exe) that reports the progress of each job to the database server and a monitoring program that displays the job information for the user (the Oasys shell).

These 3 programs can all exist on a single machine or they can comunicate with each other across seperate machines using standard networking protocols.

5.2 The Job Server (oamonserv93.exe)

The Job Server stores information on all the jobs that have recently been submitted using the Oasys Shell. The server stores the Job information in a database file called 'oadatabase.dat'. If the Job server is terminated and has to be restarted then it will automatically read the contents of this file and will be able to continue to display information on the jobs that were running when the server terminated.

By default information is purged from the database 3 days after a job terminates. The complete job history can be cleared by stopping the server, deleting the database file and then restarting the server.

5.2.1 Configuring the Oasys Monitoring Server

5.2.1.1 UNIX

As part of the Oasys 9.3 UNIX installation process a start-up script called "start_oaserver" will be installed in the installation directory. The contents of this script are as follows:

```
#!/bin/csh -f
onintr start_flush
#
# Set OASYS to point to the directory containing the software
#
setenv OASYS "/data/dyna93/linux_executables"
#
# Set SERVER_PORT to give the port number for server-client communication.
#
# DEFAULT = 26000
#
setenv SERVER_PORT 26000
#
# Start server executable
#
$OASYS/oamonserv93.exe &
#
# exit
```

5.2.1.2 Windows

As part of the Oasys 9.3 Windows installation process a start-up script called "start_oaserver" will be installed in the installation directory. The contents of this script are as follows:

```
REM
REM Set OASYS to point to the directory containing the software
REM
set OASYS="c:\program files\ove arup\oasys93"
REM
REM Set SERVER_PORT to give the port number for server-client communication.
REM
REM DEFAULT = 26000
REM
set SERVER_PORT=26000
REM
REM Start server executable
REM
@echo off start "oamonserver" /B %OASYS%\oamonserv93.exe
REM
REM
```

5.2.1.3 setenv OASYS <option> / set OASYS=<option>

As part of the installation process the environment variable OASYS is set to point to the server installation directory by default. If you wish the server to create its database file in a different location then change this environment variable to point to the desired location.

5.2.1.4 setenv SERVER_PORT <option> / set SERVER_PORT=<option>

This environment variable is used to specify what port the server will be bound to. By default the port is set to 26000.

Note 1: If this port number is changed away from 26000, then the OAMONSERVER environment variable setting in the Oasys Shell startup script needs to be altered to match this port number (see section 7 for more details on configuring the shell).

Note 2: If this port number is changed from 26000, it is up to the installing user to make sure that the port is not used by any other service on the server host machine.

5.2.1.5 Changing the database purge time

By default information is purged from the database after 3 days. This can be changed by adding a command line option "-purge=n" where "n" is the number of days data should be retained in the database.

UNIX `$OASYS/oamonserv93.exe -purge=7 &`
WINDOWS `@echo off start "oamonserver" /B %OASYS%\oamonserv93.exe -purge=7 &`
would set the purge time to 7 days.

5.2.1.6 Debug output

Debug information output can be turned on for the Job Server by adding "-debug" to the command line.

5.2.1.7 Starting the Oasys Monitoring Server

To start the Oasys Monitoring Server,

UNIX
1. **cd /path_to_server_installation**
2. **./start_oaserver**

Windows
1. **Open a DOS command window**
2. **cd \path_to_server_installation**
3. **start_oaserver**

Note :

- In windows the Job Monitor Server will You do not need to be root to start this script, but you do need write permission to the directory specified by the OASYS environment variable.

5.3 The Job Client (oamonc93.exe)

If Job Monitoring has been enabled then a copy of the job client will automatically be started whenever a LS-DYNA job is submitted. When the Job Client starts it sends the following information to the Job Server.

User Name
Number of CPU’s
Job Start Time

The Job Client then monitors the progress of the job while it is running and periodically sends updated job information to the server. If the Job server loses contact with the job client for more that 10 minutes then the status of a job will be reported as "unknown".

5.4 The Job Monitor

If Job Monitor is built into the Oasys Shell.